

# THE IRON AGE

A Review of the Hardware, Iron and Metal Trades.

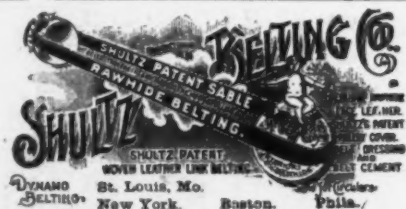
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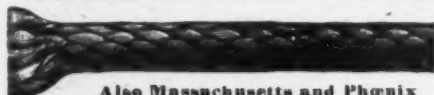


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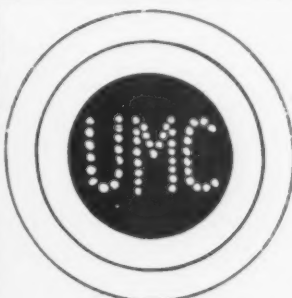
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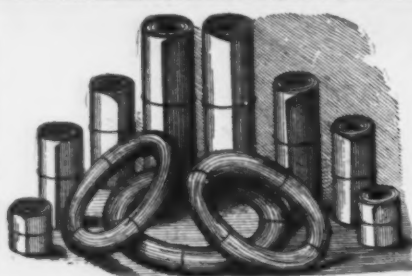
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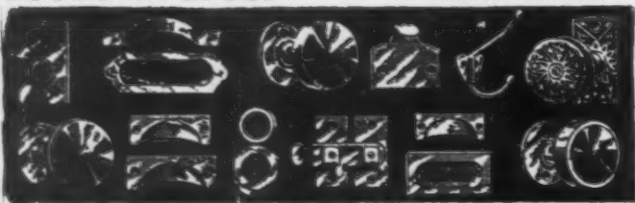
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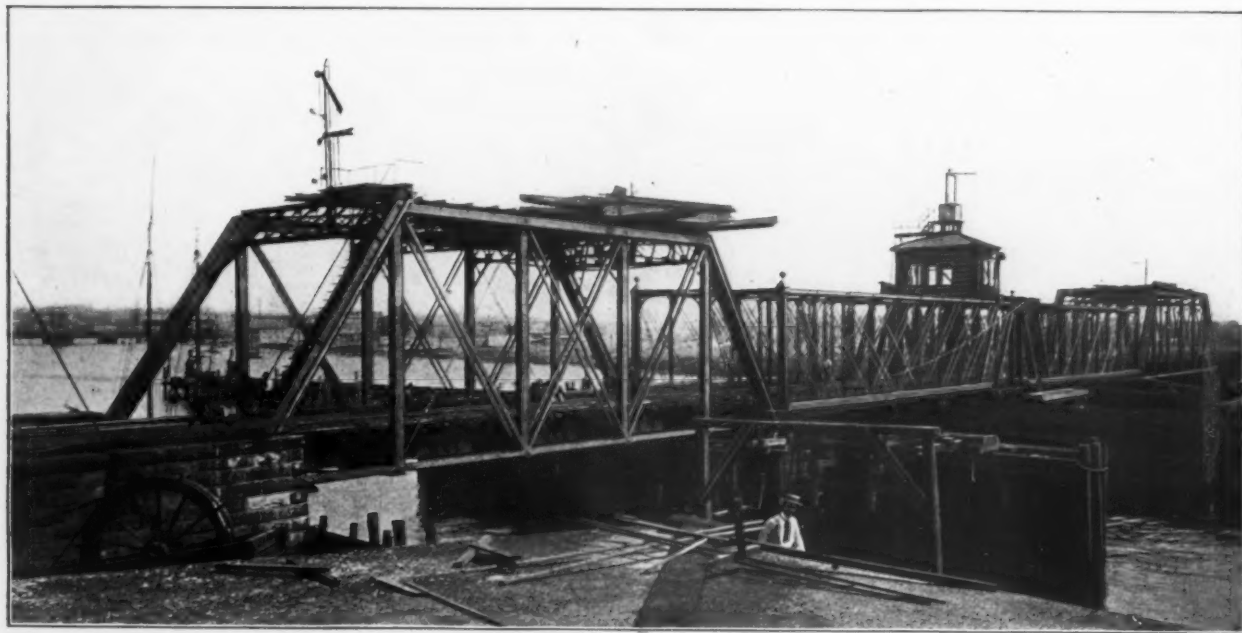
THURSDAY, JULY 27, 1899.

## Replacing a Large Drawbridge on the Pennsylvania Railroad.

An unusual and notable engineering feat was performed last Sunday by the Pennsylvania Railroad at its crossing over the Passaic River, a few hundred feet east

til after the passage of the Chicago limited, at 10.30 o'clock. During the blocking of the main line all traffic passed around the Center street branch.

Drawbridges have been removed and replaced, more or less frequently, by means of pontoons. By this method a float, lower in the water than usual, is placed under each span of the bridge, and then pumped out. The ris-



*The Old Bridge.*



*Fig. 2.—Old Bridge and New Drawbridge, Looking North.*

### REPLACING A LARGE DRAWBRIDGE ON THE PENNSYLVANIA RAILROAD

of the Market Street Station, Newark, N. J. This was the substitution of a new 600-ton drawbridge for the old and much lighter one, weighing only 350 tons. The actual work of removing the old bridge and placing the new one on its site occupied but a few moments, but several hours were consumed in fitting the turning gear, placing the wedges and latches and shifting the tracks of the approaches. None of this work could be done un-

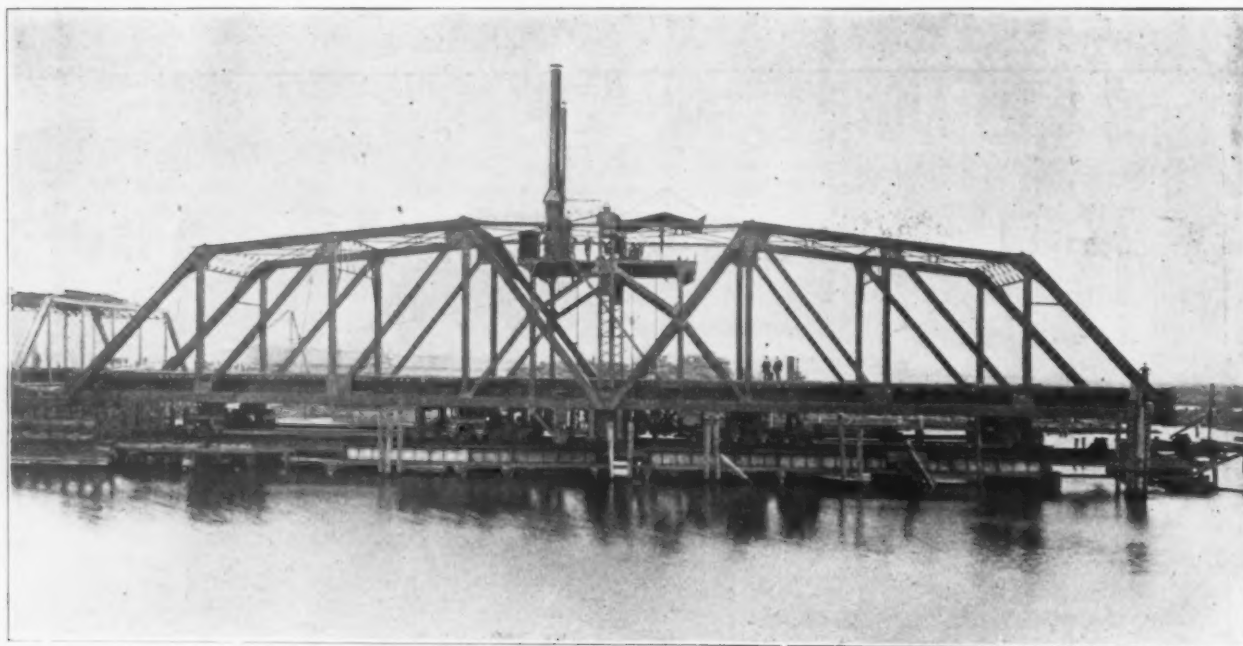
ing boats lift the bridge clear of its seat, and it is carried out of the way. The new bridge, which has been built upon pontoons, is then floated into position and lowered into place. It is evident that this plan can only be successfully carried out when there is ample water space on each side of the draw—first, of course, for the reception of the old bridge and for the building of the new, in such location as will not obstruct travel through

the draw. It is not feasible in the case of a narrow stream, where the swing occupies practically the entire width of the stream, as is the case with the Pennsylvania Bridge under consideration. Therefore in this instance another scheme had to be adopted. This consisted in the lengthening each way, up and down stream,

tracks and arranged under the bridge, as shown in Fig. 4, were eight ordinary car trucks, upon which the bridge was carried by suitable blocking. A few days before the bridges were moved this bridge was supported entirely upon ball bearing screw jacks. It was raised to a suitable elevation to permit the lower members to



*Fig. 3.—New and Old Drawbridges.*



*Fig. 4.—New Drawbridge, Showing Trucks upon which it was Mounted.*

#### REPLACING A LARGE DRAWBRIDGE ON THE PENNSYLVANIA RAILROAD.

of the pivot fenders. These extensions were about 250 feet long at each end. They consisted, as shown by the engravings, of piling, which supported two ordinary tracks of standard gauge. These were constructed on timber beams placed on top of the pile. They were so located as to be just within the side trusses of the two bridges. The new draw, having a total length between pin centers of 213 feet 4 inches, was built upon the southern extension, as shown in Figs. 2, 3 and 4. Upon these

clear the pivot machinery in the center during its travel along the track. This type of jack was employed in preference to the hydraulic, by reason of the fact that it could be more surely relied upon to maintain the bridge at the required height. In addition they required no attention after having been once set, as would have been the case with hydraulic jacks, owing to their liability to leak under heavy and continued loads.

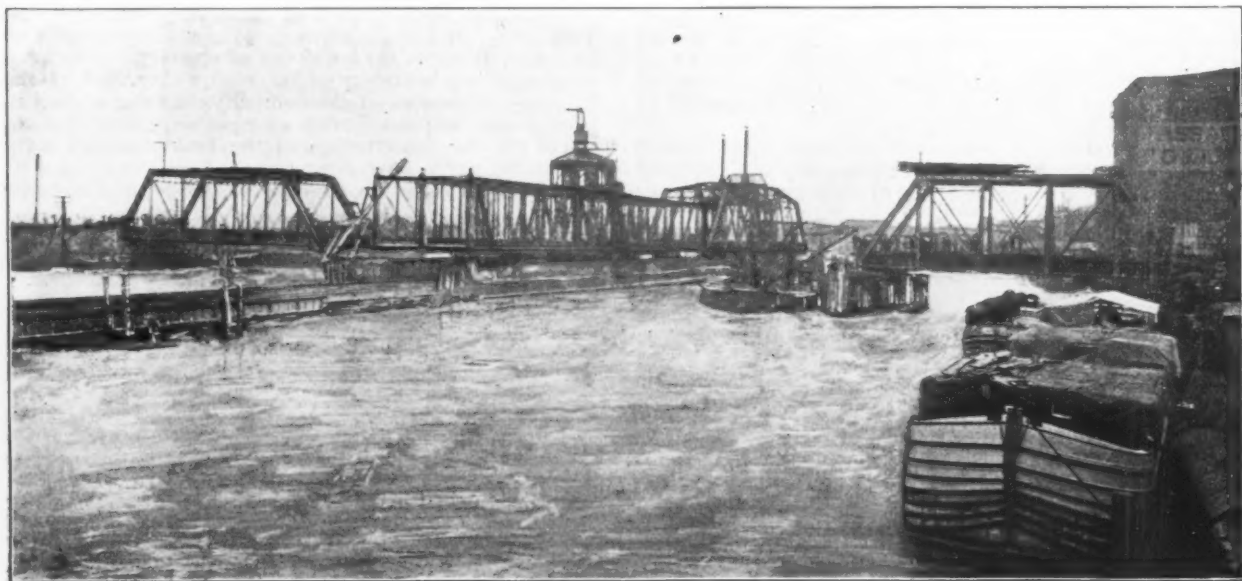
The scheme was to move both bridges along the track

formed as described. At this point there is a large and frequent river traffic, which could not be interfered with in any way. There was no side room whatever in which the new bridge could have been constructed on floats. It will be evident that by the method pursued both passages, which in the clear are 165½ feet each in width, were left entirely open for the passage of boats. In fact, the river was freer from obstruction than when the draw was in working order.

After the passage of the last train the old draw was lifted 10 inches by means of 72 hydraulic jacks, and wedged upon trucks placed upon the track beneath it. The two structures were then bound together by cables

came up, the wet rope shrank, and before it could be loosened from the hoisting drum the bridges moved a short distance as stated. When everything was ready the engines were started and without a hitch of any kind the bridges traveled over 200 feet, the time occupied being about 7½ minutes. Afterward they were pulled a little further, and, as it chanced, a few inches beyond the pivot. The new bridge was then jacked back until it rested truly over the exact center of the pier. The bridge was out of place laterally only ¼ inch.

The old bridge, which had been doing duty since 1869, was composed of three trusses, while the new one has but two. The tracks, therefore, in the old bridge were



*Fig. 5.—Looking South.*



*Fig. 6.—Looking South.—The New Drawbridge Half Way of its Travel.*

#### REPLACING A LARGE DRAWBRIDGE ON THE PENNSYLVANIA RAILROAD.

and held apart by distance pieces. The trucks had also been united, the whole forming a composite structure arranged to move along the two tracks on 16 trucks.

At the northern end of the tracks were placed two ordinary hoisting engines, Fig. 7, which did the pulling. Some 2½ miles of 6-inch Manila cables were employed. The tackle was carried around four-sheave blocks, doubled at each engine, the tackling being so arranged that the engines pulled practically upon one rope. This obviated all trouble which might have arisen if the engines had been so arranged as to pull upon independent ropes. After the slack had been taken up it was noticed by those watching the bridge that it moved a few inches. In a certain sense this movement was premature, although it occurred at a time when the old structure was free from all obstruction. At that time a brisk shower

further apart than in the new, because of the presence of the center truss. As soon as the old bridge had been swung into line with the new one gangs of men were placed at work upon each approach, the tracks of which had to be removed and relaid nearer together in order to properly meet those of the new draw. The ends of the approaches had previously, as far as was practicable with the working of the old bridge, been arranged to receive the wedge seats and locks of the new draw. The placing of these fixtures, changing the tracks and placing the turning mechanism in position occupied until 5.30 p.m., when the new bridge was first swung.

The new bridge was designed and built by the Edgemoor Iron Company, and the work of substitution was carried out under the personal direction of L. H. Barker, principal assistant engineer of the road.



### The Canadian Niagara Power Company.

A most important announcement in connection with the Niagara power development is made to the effect that an amendatory agreement between the commissioners for the Queen Victoria Niagara Falls Free Park, acting for the Government of the Province of Ontario and the Canadian Niagara Power Company, was executed on July 15. The information, however, was not made public until the 22d inst. The agreement thus executed was authorized by an act of Parliament passed in March last, and it extends the time of the Canadian Niagara Power Company within which 10 000 horse-power must be developed in the Canadian park until July 1, 1903. The new franchise is for 110 years and the annual rent has been reduced from \$25,000 to \$15 000. There are also other amendments to the grant, such as the location of the plant and power house, all the plans for which have now been approved. The Canadian Niagara Power Company, on their part, have yielded their exclusive right to the use of waters within the Canadian park and the commissioners of the park are at liberty to deal with other companies for the development of power outside the territory occupied by the Canadian Niagara Power Company.

The original franchise between the park commissioners and the Canadian Niagara Power Company was executed in April, 1892. Under the terms of this grant the power

Thomas M. Adams, Robert Peebles, E. C. Means and M. H. Houston, all of Ashland, Ky.; Oscar Richey and B. H. Burr of Ironton, Ohio; John G. Peebles of Portsmouth, Ohio, and W. W. Franklin of Columbus, Ohio. The board organized by the re-election of the former officers—viz.: I. A. Kelly, president; E. C. Means, vice-president; B. H. Burr, secretary, and L. R. Putnam, treasurer. The iron and Bessemer steel departments have been in continuous and successful operation during the year, and the fine new Garrett rod mill running night and day since starting, April 1, and is now making records in that line for successful running and tonnage. This company do not belong to any of the recent consolidations and control their material from the ore to finished product.

### A New Shipbuilding Plant.

Work has been started on the plant which the New York Ship Building Company propose erecting on the Delaware River in the lower end of Camden and adjacent to the northern boundary of Gloucester City, N. J. Henry G. Morse, president of the company, has stated that the work would be pushed with all possible speed. The contracts for the construction of the buildings and laying out of the yards have been awarded. A high fence has been built inclosing the grounds. Considerable large ma-



Fig. 7.—Hoisting Engines.—Old Bridge at the End of its Travel.

### REPLACING A LARGE DRAWBRIDGE ON THE PENNSYLVANIA RAILROAD.

company were to have 10,000 horse-power developed and water connections made for 25,000 horse-power by November 1, 1898. The grant was good for a century under renewal and the annual rent was to be \$25,000 a year for the first ten years, after which it was to increase \$1000 a year for ten years more, until the annual rental was \$35 000 a year, at which amount it was to remain for the years under which the grant was renewed. The new franchise is far more satisfactory than the old one so far as the Canadian Niagara Power Company are concerned. Its terms are more liberal and it gives them four years longer in which to develop 10 000 horse power. The revenue to the park is lessened \$10,000 a year.

**The Eckel Bros. Steel Company.**—A new mill was started at Syracuse on the 17th ult. by the Eckel Bros. Steel Company, of which Peter Eckel is president, Philip Eckel vice-president and Francis H. Nye, Jr., is secretary and treasurer. Jacob, Louis, John and Frank Eckel are the master rollers, all of the parties having been formerly connected with the Sweets Mfg. Company of Syracuse. The new company will make a full line of merchant steel, including tire, shoe toe calk, cutter shoes, machinery steel, spring steel, agricultural steel, and tees, angles, channels. They also make special shapes and angles and rods for bedstead work.

**Ashland Steel Company's New Wire Rod Mill.**—At the regular annual meeting of the Ashland Steel Company, held in Ashland, Ky., on July 20, the following directors were re-elected for the ensuing year: I. A. Kelly,

chinery has also been contracted for. Owing to the protracted deliveries which are being named by machinery merchants, it is thought that the tools will not be delivered much before the building in which they are to be erected will be completed. Mr. Conradson, who designed the Gisholt lathe, is chief engineer for the company.

The company have also secured the services of Captain Randle, until recently commodore of the fleet of the American Line of the International Navigation Company. He is the first vice-president and general consulting superintendent of the entire plant.

The company will build large merchantmen, and it is also unofficially stated that they will make a bid for large Government work.

Professor Dewar, while lecturing at the Royal Institute, London, on June 7, introduced "a new agent in chemical research" in the form of liquid hydrogen. After explaining that liquid hydrogen was costly, excessively volatile and had to be preserved with great care, he pointed out that there must always be something that would enable them to preserve it as much as possible from radiation. Therefore, in his experiments, he would surround it with liquid air. The reflection of a tube of liquid hydrogen was then thrown on the screen, the lecturer drawing attention to the surrounding air solidifying as snow. In another experiment a piece of cork sank to the bottom of the liquid hydrogen. Next proof was afforded that the newly discovered liquid has not magnetic properties. The temperature at boiling point is 21 degrees absolute, or 232 degrees below freezing point.

## Mechanical Devices for Riveting and Calking Ships.

We find the following in a paper by R. T. Napier before the Institution of Civil Engineers:

The only machines that need be considered in connection with shipbuilding divide naturally into two classes—viz.: 1. Machines that close the rivet by pressure; and 2, machines that close the rivet by percussion. The first of these is represented by the well-known hydraulic riveter, which made its appearance in the shipyard about 30 years ago, and by the less known but no less useful pneumatic riveter, which has perhaps half as long a working record. These machines are too well known to require description; the inherent disadvantages of the class is that, as the working strains must be self contained, no separate holder up being possible, the use is limited by the depth of the gap, and, with the increase of the gap there increases, in a greater ratio, the weight. In this connection it may be stated that an ordinary hydraulic riveter of 24-inch gap, such as used for framing purposes, weighs about 10 hundredweight, and that one of 84-inch gap—perhaps the largest hitherto used in ship work—weighs about  $5\frac{1}{2}$  tons.

Early in its history the hydraulic riveter—a success from the outset when riveting up work brought to it—was set to such work on board ships on the stocks as it could be brought to bear on. So far as the writer's knowledge goes, a saving in cost and time did not always attend this proceeding, and it certainly has not become the general practice of shipbuilders. According to the published accounts an application of the hydraulic riveter on a large scale was made in the case of the steamer "Oceanic."

The second class of riveter—viz., that in which the rivet is closed by percussion—is as yet only on its trial on this side of the Atlantic, although, in a measure, approved and adopted on the other. This riveter in its action approaches as nearly as may be to hand work, a hammer being kept in motion by a suitably applied electric motor or by compressed air, the rivet head being held up by a separate device.

The convenience of being able to commence riveting at any stage during the work of plating is unquestioned, and the simplicity of handling a machine weighing pounds instead of hundredweights is equally so. The noise that a percussive riveter makes is admittedly against it, and for this no remedy is forthcoming. It is not in the nature of a riveting machine to close a countersunk rivet, leaving the point flush with the plating, and either a point more or less cupped must be accepted or the surplus metal must be chipped off. Since butt landings are no longer thought an offense to the eye with shell plating, so, no doubt, cupped rivet points might live down existing delicacy on the subject. With a bare steel deck it is otherwise, and here chipping is unavoidable. American practice is to do this chipping by means of a tool, also driven by compressed air, and then flatten the point by a second application of the riveter.

Two axioms have long ruled in connection with riveted work, the first being that the least diameter of hole that could be punched in an iron plate was represented by the thickness of such plate; and the second that a rivet of  $1\frac{1}{4}$  inches in diameter was the limit of the power of an average riveting squad to knock down satisfactorily. With the advent of the riveting machine, as applied to keel plates and top sides, the naval constructor will again have a free hand to proportion rivets and plates to advantage.

Assuming that the difficulties of rigging the gear do not stand in the way, there seems no *a priori* reason to prevent the bulk of shell riveting being done by the hydraulic or pneumatic machine, provided that other considerations be made subordinate. By working all the plating clinker system—a system less objectionable now that joggled landings have banished slips—and proceeding from the keel plate upward, completing one strake at a time, a riveter with a gap sufficient to take in the broadest plate would do the job.

In the case of decks, the same might be done, working inboards from the stringers and closing the center strake by hand; and even bulkheads might conceivably be done were the stiffeners erected first. To what extent it would be profitable thus to depart from present practice is a matter for discussion. Whatever other difficulties would be faced in the shipyard a trial of the percussive riveter on its merits would be no difficult or expensive matter. To any who at present have pneumatic riveters in use, and consequently have compressed air at command, it would be a trifle; to the many who employ electric energy for other purposes this would make but a small addition.

### Calking Machines.

Regarding the application of machines to the calking of ships not much is on record. Such machines, driven

by compressed air, were brought before shipbuilders eight or nine years ago, and others, electrically driven, were also advocated. In the hands of their respective inventors these machines did good work, and shipbuilders were not slow to buy them, but after the purchase came the trouble in the refusal of men to work them. In some yards the difficulty was got over, and the machines are doubtless now at work; but in others the opposition of the calker in possession of the job seemed serious, and the machines were laid to rest in the tool store. In America the calking machine had a record to show, and its adoption on this side may yet be accomplished.

### The Material of Ship Rivets.

It is known to every shipbuilder that Lloyd's Committee does not legislate one way or another in this matter; that the rivets are good iron or good steel is all that the surveyor looks to. It is also known that the Committee of the British Corporation, while nominally leaving the builder free to use either iron or steel rivets, recommends the latter, and practically puts a premium on them by prescribing, for certain thicknesses of plate, quadruple riveting for iron rivets, and only treble for those of steel. Both rules cannot be right in this matter, and as some builders take credit for using steel rivets exclusively, while others never use a steel rivet unless owners insist upon it, there is room for the matter being discussed and settled. The first time that the question was brought before a representative gathering of experts was in the interesting paper read by Mr. Martell of Lloyd's, in 1878, before the Institution of Naval Architects. The results of various experiments were given in the paper, and from them the author concluded that "In order to accomplish this"—i. e., insure the strength of the plates being realized—either the rivets should be larger or more closely spaced, or "... the butts would have to be treble riveted with iron rivets or double riveting with steel rivets adopted."

In the discussion it was stated, on the part of the dockyards, that H. M. S. "Iris" was riveted with iron rivets, as the test had shown a slight advantage for these over steel. Various gentlemen expressed their preference for steel rivets, and the matter was left for the future to settle. In 1881 the well-known series of reports on riveted joints was laid before the Institution of Mechanical Engineers, but from this little light on the present subject can be got. The experiments conducted by Professor Kennedy were all made with steel rivets, no comparison with iron rivets has seemingly been thought necessary; and out of the tables in the report of the committee—having Professor Unwin for its official leader—it may be worked out that the average efficiency of seven treble steel riveted lap joints is 63.57 per cent. of the solid plate, while that of a like number of similar joints with iron rivets is 71.43 per cent., or fully 10 per cent. more. As Siemens-Martin steel is not so satisfactory for smithy purposes as iron made by the puddling furnace there seems no initial reason why the opposite should hold good in the case of rivets which, as often as not, are heated to a welding temperature. With the light of 20 years' experience in the building of steel ships this matter can surely now be judged on.

### Some Steel Car Statistics.

Three years ago the steel car industry was in its infancy; two and a half years ago it employed about 1000 hands; to-day 10,000 men and boys are earning their living at it. The Baltimore & Ohio Railroad has bought 6000 cars, the Pennsylvania Railroad 3000, the Lake Shore 2000, and nearly all the Eastern roads have given orders for some of the cars. The rise of the steel car has benefited the steel rail and bridge material manufacturers, as railroads are laying heavier rails and strengthening bridges to prepare for the revolution in the freight traffic system that the new car has produced. To reduce the dead weight and yet increase the load bearing capacity of the parts was a problem that was not solved till the adoption of steel pressed into shapes best calculated to bear the strain of heavy loads. The wooden car of 70,000 pounds capacity weighed 35,000 pounds, the ratio of the light weight or weight when empty of the car to its carrying capacity being 50 per cent. The steel car of 80,000 pounds capacity weighs 28,000 pounds, a ratio of 35.62 per cent. One of 100,000 pounds capacity weighs 35,000 pounds, a ratio of 32.27 per cent. In brief the wooden car that carries 70,000 pounds of coal weighs 35,000 pounds; the steel car that carries 110,000 pounds of coal weighs only 5000 pounds more. The wooden car carries coal equal to twice its weight; the steel car carries three times its own weight, with 3500 pounds to spare. Railway reports show that the 80,000-pound cars of the Pennsylvania Railroad are built at a cost of \$800; it is estimated that the steel car of 100,000 pounds capacity costs about \$1000. The life of a wooden car averages 15 years, with \$35 a year for repairs, and the life of a steel car is 50 years, with repairs costing \$10 to \$15.



## A Controversy on Disappearing Gun Carriages.

WASHINGTON, July 25, 1899.—A very remarkable controversy has arisen in the War Department concerning the relative merits of the two leading types of disappearing gun carriages, known as the Howell and the Crozier-Buffington carriages. The issue has been carried to a point where the propriety of the conduct of very high officials has been called seriously in question, and an issue has been raised of great importance to private inventors and manufacturers. The final determination of the controversy, which is now before the Secretary of War in the form of an appeal from the owners of one of the patents in question, has been put over for decision by Secretary Alger's successor and will be awaited with great interest.

Some time ago the Board of Ordnance and Fortification, which is charged by Congress with the duty of experimenting with new types of ordnance and the selection of models for use in the service, by formal action adopted as one type of disappearing gun carriage the device invented by Commodore William Howell of the Navy, which had been severely tested at the army proving grounds. Previously the Department had adopted the so called Crozier-Buffington carriage, which was the joint production of Captain Crozier, the present representative of the United States to the Disarmament Congress at The Hague, and General Buffington, recently appointed Chief of Ordnance to succeed the late General Flagler. It is stated on high authority that the Board of Ordnance and Fortification did not intend to displace the Crozier-Buffington carriage by the adoption of the Howell carriage, but merely to include it among those with which satisfactory experiments had been made demonstrating its efficiency and its special availability for rapid installation for coast defense. This view of the case does not appear to have prevailed in the Ordnance Bureau, for General Buffington promptly took exception to the action of the board and in a communication to the Secretary of War not only commented very unfavorably upon the Howell carriage but went so far as to pass certain strictures upon the *personnel* and expert character of the Board of Ordnance and Fortification. The representatives of the Howell patents, when apprised of the action of General Buffington, at once appealed to the Secretary for a hearing, and have since filed a statement in which they defend the Howell carriage and comment caustically upon General Buffington's attitude and the spectacle that is presented by a Chief of Ordnance using his official authority to prevent the adoption of the device of a rival inventor.

At the outset of the statement of the representatives of the so called Howell patents the writer protests against the references made in previous communications by General Buffington, Chief of Ordnance to the expert character of the Board of Ordnance and Fortification.

"We do not feel," says the writer, "that the board needs any defense at our hands, and we do not presume to answer this criticism. Suffice to say that the Board of Ordnance and Fortification is one of the most important boards organized under the authority of Congress, and is representative of the engineers, the Ordnance Bureau, the artillery branch and the civilian interests of the country, and is presided over by the general of the army. This board is unquestionably charged by Congress with the important work of directing the building of coast defenses and Congress regards it as a board of experts. The Ordnance Office has always been represented on the board by an officer of acknowledged ability and experience. We believe that each of the officers representing his particular branch of the service has always been selected because of his peculiar fitness for the duties of the board, and we are at a loss to know who General Buffington will acknowledge to be experts in the army outside of himself and Captain Crozier.

"Referring to General Buffington's explanation of his interest in the foreign patents taken out on the Crozier-Buffington carriage, we do not see that he shows a state of facts materially different from those as stated heretofore. General Buffington shows that he and Captain Crozier still anticipate doing some business with the foreign patents. He says 'the whole matter is in the hands of Captain Crozier,' who is now abroad, and it may reasonably be expected that before he returns he will have successfully exploited the patents, to the financial advantage of General Buffington and himself. The fact that each feature of the invention as soon as perfected is promptly patented abroad indicates that the inventors are hardly paying patent charges without the expectation of realizing financially on the sale or license of those patents.

"The following extraordinary spectacle is now presented to American inventors, to officers interested in the coast defenses of the country and to the public: General Buffington admits a partnership interest in the Crozier-Buffington patents for disappearing gun carriages. By the rule of the Department he is the officer who makes contracts for ordnance material. His partner, Captain

Crozier, has not dedicated to the United States the use of any of the patents which have been taken out in his name for disappearing carriages since the issuing of the Crozier-Buffington patent. These patents are all used in the construction of the Crozier-Buffington carriage, so called.

"The Supreme Court of the United States has laid down the rule in Twelfth Wallace, in the case of Burnes, an army officer, against the United States, that where the United States uses a patent with the consent of the owner an implied contract arises on the part of the United States to pay to the patentees a royalty for the use of said patent. There is no question, therefore, looking at it in a legal aspect, but that Captain Crozier can go to the Court of Claims at any time he desires and recover from the United States a royalty for the use of his patents by the Government. It is evident from the contention in this case that the present Chief of Ordnance does not intend that any further improvements in gun carriages shall be made except by himself and Captain Crozier, and although there must be some \$5,000,000 to \$8,000,000 to be expended in gun carriages for the coast defenses before they are completed in accordance with the Endicott board's scheme, the inventive genius of this country is put upon its notice that it is useless for them to pay any attention toward the improvement of this most important branch of the coast defense. This monopoly will resist any attempt to interfere with its right.

"One of the peculiar incidents of this controversy is the summary relief of Major Phipps, the ordnance officer on the Board of Ordnance and Fortification, a few days after the board had recommended the approval of the Howell carriage as an additional type for the coast defenses and the substitution on recommendation of General Buffington, of Captain Wheeler, whose friendly interest in the Crozier-Buffington carriage is shown by the signature of that gentleman as a witness to the Crozier-Buffington original patent. Major Phipps has been upon the board for some years. He was president of the Ordnance Trial Board which reported upon the tests of our carriage and voted for the adoption of the Howell carriage as a type. The law contemplated that the Board of Ordnance and Fortification should be composed of impartial officers: Whether the removal of Major Phipps and substitution of Captain Wheeler can be regarded as carrying out the principle for which the board was organized and which the law contemplated is a question that admits of no argument.

"From all these facts, Mr. Secretary, we leave it to you to draw your own conclusions as to what is right in the premises. We respectfully call the attention of the board to the fact that all the technical points submitted by General Buffington have been considered by the board and the fallacy of his arguments shown by the test of the Howell carriage."

The communication then proceeds to discuss the criticisms of the Howell carriage made by General Buffington, each point being taken up in order and the conclusion reached that the Howell carriage can be operated with much less strain upon the gun, the carriage and the foundation than the so called Crozier-Buffington carriage.

"The foundation of the Howell carriage will be much cheaper and more satisfactory," it is said, "for, 1. there is no greater overturning moment, and 2. the Howell platform is entirely free of strain due to the sudden shift of heavy weights. In the Crozier-Buffington carriage after fire the weight of 30 tons is suddenly shifted 9½ feet and again when the gun returns to the firing position. If the Crozier-Buffington carriage be trained 180 degrees there will be a shifting of over 60 tons from nearly the extreme verge of the foundation on one side to the verge on the other side, which may account for the settling of the foundations as stated in the public prints. In the Howell during fire the only change of weight is in the preponderance of the counterpoise. For a train of 180 degrees the center of gravity of the moving parts (over 60 tons) moves about 3 feet instead of 25 or 30 feet, being near the center of the foundation always, as in the Crozier-Buffington for the same train, and the Howell foundation is not weakened by the enormous activity necessary to accommodate the weight of the Crozier-Buffington."

It is expected that an oral hearing will be given to all interests as soon as General Alger's successor has sufficiently familiarized himself with his surroundings to take up the routine business of the Department. The representatives of the Howell patents confidently assert that the record will disclose facts bearing out all their statements and indicating that the Chief of Ordnance has been actuated solely by personal considerations in his course toward the Howell carriage.

W. L. C.

**The International Wire Syndicate.**—ESSEN, July 9, 1899.—As reported at the time, the negotiations between the American and German delegates to form an international wire syndicate halted chiefly because the formation of a German syndicate on drawn wire failed through the pretensions of a Silesian works. This concern have



now modified their position and the formation of the German syndicate is now assured, to take effect probably on October 1 and at the latest on November 1. This, it is hoped, will be followed by the formation of the international wire syndicate.

### Midsummer Pig Iron Statistics.

The American Iron and Steel Association of Philadelphia has published the detailed statistics of the production of pig iron for the first half of 1899. They show that the output of pig iron of all kinds has been 6,289,167 gross tons for the first six months of 1899, as compared with 5,904,231 tons during the second six months of 1898, and 5,869,703 tons during the first half of 1898.

The production of the coke and anthracite furnaces was as follows:

#### Production of Coke and Anthracite Pig Iron.

States and Districts.	First half of 1898.	Second half of 1898.	First half of 1899.
New York.....	110,298	111,113	149,739
New Jersey.....	51,695	45,986	
Pennsylvania:			
Lehigh Valley.....	145,379	122,889	174,340
Schuylkill Valley.....	150,060	152,361	175,195
Upper Susquehanna Valley.....	50,444	46,222	77,438
Lower Susquehanna Valley.....	254,282	240,559	257,381
Juniata Valley.....	16,805	39,999	38,150
Allegheny County.....	1,465,535	1,557,366	1,580,576
Shenango Valley.....	426,365	343,812	428,727
Miscellaneous bituminous.....	258,138	264,925	314,857
Maryland.....	105,684	83,184	101,715
Virginia.....	126,941	156,333	163,389
North Carolina.....			3,397
Alabama.....	493,609	503,833	502,483
West Virginia.....	104,516	88,183	98,138
Kentucky.....	48,730	51,994	54,020
Tennessee.....	122,537	123,404	134,193
Ohio:			
Mahoning Valley.....	413,065	356,269	447,044
Hocking Valley.....		2,765	7,500
Lake Counties.....	194,601	194,275	183,136
Miscellaneous bituminous.....	330,737	343,062	342,202
Hanging Rock bituminous.....	57,440	87,793	92,289
Illinois.....	666,580	699,318	705,623
Wisconsin.....	72,722	61,836	64,091
Missouri.....	17,940	22,378	16,098
Colorado.....	35,597	55,625	48,961
Totals.....	5,722,700	5,770,484	6,160,682

The total production of coke and anthracite pig iron in Pennsylvania was 2,767,008 tons during the first half, 2,767,633 tons during the second half of 1898 and 3,046,664 tons during the first half of 1899. Ohio produced during the three periods named 995,843 tons, 984,164 tons and 1,072,171 tons, respectively.

The production of Bessemer pig was as follows:

#### Production of Bessemer Pig.

	First half of 1898.	Second half of 1898.	First half of 1899.
Pennsylvania:			
Lehigh Valley.....	38,434	36,686	15,308
Schuylkill Valley.....	26,257	28,884	28,124
Upper Susquehanna Valley.....	50,444	46,222	77,438
Lower Susquehanna Valley.....	182,027	178,282	194,264
Allegheny County.....	1,210,249	1,249,015	1,247,263
Shenango Valley.....	368,815	256,410	351,203
Miscellaneous bituminous.....	177,548	191,692	194,818
Maryland.....	103,379	83,184	93,749
West Virginia.....	104,516	88,183	98,138
Ohio:			
Mahoning Valley and Hanging Rock bituminous.....	295,367	250,108	293,768
Hocking Valley.....			
Lake Counties.....	173,833	188,915	166,704
Miscellaneous bituminous.....	330,737	331,575	327,499
Illinois.....	587,445	622,679	642,528
Michigan and Wisconsin.....	5,602	11,957	5,357
Missouri.....	48,931	70,008	47,746
Colorado.....			
Totals.....	3,703,581	3,633,800	3,788,907

The total production of Bessemer pig iron in Pennsylvania was 2,053,774 tons in the first half of 1898, 1,987,191 tons in the second half and 2,113,418 tons in the first six months of 1899. For Ohio the figures for the corresponding periods were 799,937 tons, 770,598 tons and 787,971 tons.

The production of basic pig iron is reported as follows:

#### Production of Basic Pig Iron.

	First half of 1898.	Second half of 1898.	First half of 1899.
New Jersey.....	645		
Pennsylvania—Allegheny County.....	153,429	224,727	230,109
Other counties.....	102,318	102,229	128,771
Maryland, Virginia and Alabama.....	55,834	98,995	82,377
Ohio, Illinois, Wisconsin and Missouri.....	25,259	22,008	24,700
Totals.....	337,485	447,959	465,957

The quantity of spiegeleisen and ferromanganese produced in the first six months of 1899 was 104,496 gross tons, against 104,128 tons in the last six months of 1898 and 109,641 tons in the first six months of that year.

For the charcoal iron industry the report shows the following:

#### Production of Charcoal Pig Iron.

	First half of 1898.	Second half of 1898.	First half of 1899.
Massachusetts.....	1,243	2,418	978
Connecticut.....	3,426	2,910	4,390
New York.....	3,816	2,784	5,060
Pennsylvania.....	541	2,650	1,334
Maryland.....		2,106	
Virginia.....			507
Georgia.....	7,315	6,447	
Alabama.....	18,239	18,495	14,604
Texas.....	1,817	3,361	3,643
Tennessee.....	8,283	9,215	7,944
Ohio.....	3,108	3,243	2,862
Michigan.....	74,848	72,792	
Wisconsin.....	24,367	23,326	87,163
Missouri.....			
Totals.....	147,003	149,747	128,485

On the question of stocks Mr. Swank says: Our statistics of stocks of unsold pig iron do not include pig iron sold and not removed from the furnace bank, or pig iron in second hands or in the hands of creditors, or pig iron manufactured by rolling mill owners for their own use. The stocks which were unsold in the hands of manufacturers or their agents on June 30, 1899, amounted to \$1,220 gross tons, against 571,577 tons on June 30, 1898, and 291,233 tons on December 31, 1898.

Included in the stocks of unsold pig iron on hand on June 30, 1899, were 4827 tons in the yards of the American Pig Iron Storage Warrant Company which was yet under the control of the makers, the part in these yards not under their control amounting to 45,973 tons, which quantity, added to the \$1,220 tons above mentioned, makes a total of 127,193 tons which was on the market at that date, against a similar total of 415,333 tons on December 31, 1898. The total stocks in the above named warrant yards on June 30, 1899, amounted to 50,800 tons, against 150,800 tons on December 31, 1898.

### The World's Iron and Steel Production.

We are indebted to James M. Swank, general manager of the American Iron and Steel Association, for copies of a monograph forming part of the forthcoming volume of the "Mineral Resources" published annually by the United States Geological Survey. It presents full statistics of the iron industry of this country and the leading producing countries of the world. The following table summarizes in admirable form the statistics of the world:

#### World's Production of Pig Iron and Steel.

Countries	Year.	Pig iron. Production. Tons.	Per-cent. age.	Year.	Steel. Production. Tons.	Per-cent. age.
United States.....	1898	11,773,934	33.02	1898	8,932,857	37.02
Great Britain.....	1898	8,631,151	24.21	1898	4,665,986	19.33
Germany and Luxemburg.....	1898	7,232,988	20.29	1898	5,779,570	23.96
France.....	1898	2,534,427	7.11	1898	1,473,100	6.11
Belgium.....	1898	979,101	2.75	1899	653,130	2.71
Austria and Hungary.....	1897	1,368,493	3.67	1896	880,696	3.65
Russia and Finland.....	1898	2,193,750	6.15	1897	1,153,000	4.78
Sweden.....	1897	538,197	1.51	1897	275,128	1.14
Spain.....	1898	261,799	.73	1898	215,015	.88
Italy.....	1897	8,303	.02	1897	63,940	.27
Canada.....	1898	68,755	.19	1898	21,540	.09
Other countries.....	1897	125,000	.35	1897	15,000	.06
Totals.....		35,655,988	100.00		24,126,962	100.00

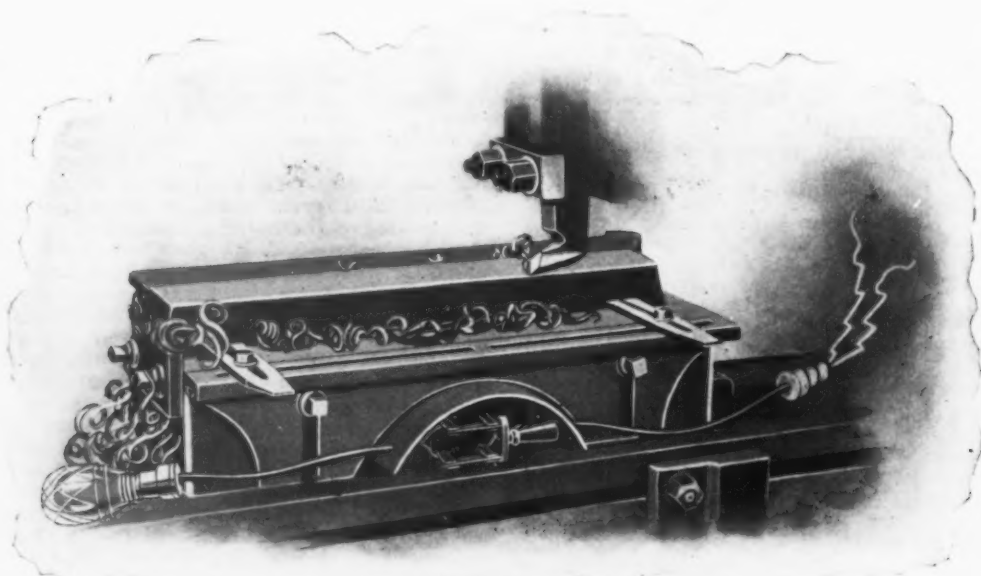
English tons of 2240 pounds are used for Great Britain, Canada, the United States and "other countries," and metric tons of 2204 pounds for all other countries, metric tons being used as the equivalent of English tons in ascertaining the total production for all countries.

In the United States Circuit Court at Pittsburgh, on Friday, July 21, a bill in equity was filed by the Carnegie Steel Company, Limited, asking for an injunction restraining Edmund W. Heyl and William J. Patterson, comprising the engineering and contracting firm of Heyl & Patterson, from manufacturing an apparatus for casting and conveying pig iron. The defendants, with Julian Kennedy, the well known mechanical engineer; Charles A. Arthurs and W. Wilson Burns, have just secured a charter for the Pittsburgh Casting Machine Company, and it was their intention to manufacture the conveyor on a large scale. The Carnegie Steel Company, Limited, in their bill claim that the Heyl & Patterson machine is an infringement on a patent of Edward A. Uehling of Birmingham, Ala., which they purchased some years ago and have had in use in their furnace plants. The Carnegie Steel Company, Limited, further allege that the defendants have been manufacturing the apparatus and have thereby caused the Carnegie Company great financial loss. Damages and an accounting are demanded.

### The Walker Magnetic Chucks.

The magnetic chucks for planers, grinders or lathes built by O. S. Walker & Co. of Worcester, Mass., do away with all bolting, strapping, wedging or sticking down work on planers or surface grinders. They are not only good for thin work, but better for thick work. They have a wide range for such work as packing strips, racks, gibs, plates, straight edges and parallel work of all kinds. Work with beveled edges and work impos-

in Fig. 1 and in detail in Figs. 2 to 5 is an extremely powerful one, having a strong magnetic attraction in a horizontal direction against a vertically adjustable back rest as well as a holding down attraction. Advantage is taken of this feature to hold work for finishing the edges as well as the flat sides. A squaring device is also furnished with the chuck so that the edges can be planed exactly at right angles to the sides. Edge finishing up to  $3\frac{1}{2}$  inches high can be done. The whole face of the chuck is rendered practically a holding surface. If the piece to be worked is of rough casting it



Universal Magnetic Chuck.

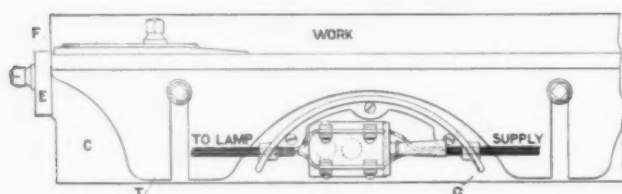


Fig. 2.

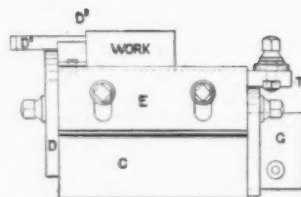


Fig. 3.

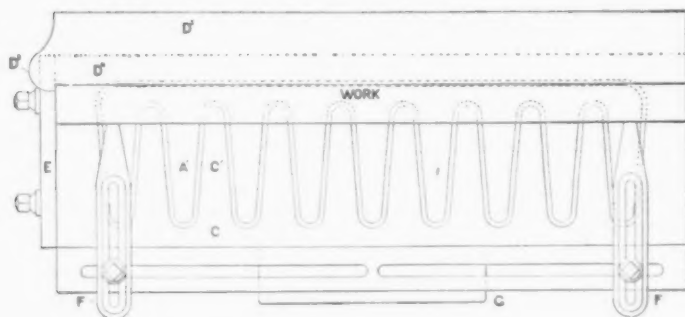


Fig. 4.

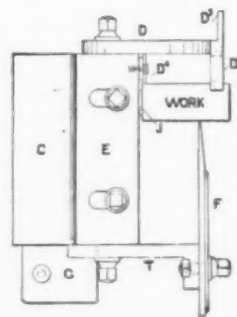


Fig. 5.

Details of Universal Magnetic Chuck.

### THE WALKER MAGNETIC CHUCKS.

sible to hold by other means can be chucked instantly. On rotary chucks disks and washers can be ground or turned of perfectly even thickness and in a minimum of time.

The mechanism is extremely simple; it is in reality an electro magnet, made in box form, completely inclosing an electric coil which is not in contact with the chuck but thoroughly insulated, so that there is no danger to the operator in handling. A protected and guarded switch is attached to the side of the chuck, and the electricity is conducted to the same through a protected motor cord or cable. The current usually employed is from the regular 110 volt shop lighting circuit, and any of the smaller chucks can be connected in place of a lamp. The chuck shown in perspective

is first placed on the chuck as in Figs. 3 and 5, and, if necessary, "shimmed up" to take the "rock" out. If the piece is very thin the fingers F are laid against it. Having one side now planed it is rolled over, and the opposite side is planed perfectly parallel with the first one. It is then adjusted as in Fig. 5, resting on the accompanying shoe J, which allows it, in spite of the unevenness of the edge, to lie against the back rest and the strip D', squaring it by one of the finished sides. It is then held in this position vertically and horizontally solely by magnetic power. One edge being planed, the shoe J is removed and the fourth side is finished with the piece lying on the chuck direct.

The chuck, Figs. 6 to 11, has a holding face  $9 \times 3\frac{3}{4}$  inches, stands  $2\frac{5}{8}$  inches high, and is a type in demand

for surface grinders. Figs. 6 to 9 show a variety of somewhat difficult work to hold by ordinary means. The connecting wires are attached to the posts B' B' and the insulated knob C' operates a switch. This style of chuck is particularly useful where a large number of small flat pieces are to be ground to the same thickness. The power required for one of these chucks is about 25 watts, or less than one-half of the power consumed by one 16 candle-power lamp. The company make many other patterns of chucks adapted for a wide range of work.

### Lake Iron Ore Matters.

DULUTH, July 22, 1899.—Railway managers at upper lake ports are complaining of the movements of ships, and say there are not enough boats to carry ore at the docks and that both mines and ore roads are capable of delivering a very considerable quantity in excess of the amount moved by lake. As noted last week stock piles are well exhausted, however, and when it comes to the question of moving ore from shafts alone there will be less cause for complaint. There now seems to be a revision of opinion as to total shipments for the year, and some authorities put the probable total at less than 14,500,000 tons, which I believe too low by considerable. Mining companies are somewhat short of estimates and in some cases short of actual sold ore, but the season is

trains of ore daily of a very high grade. This is the Commodore, and it is shipping a better ore than at any time in its history. Its ore goes to Corrigan, McKinney & Co. and the Cleveland Storage Company. The Republic Iron & Steel Company's mines are not being operated as heavily as had been hoped, largely on account of the lack of men, and their product this year will be of small importance—not over 100,000 tons. A couple of years' heavy work is likely to exhaust these mines unless unexpected extensions are found. Water has been very troublesome on this range this year, the Elba having had so much difficulty as to interfere seriously with shipments, and the mine is now again shut down waiting more pumps. The Fayal has been unfortunate and at the great Carnegie property, Mountain Iron, the shovels have gone so deep as to make the sinking of a sump and placing of a pump a necessity. The heavy rains of the season have been hard on open pit mines especially.

The No. 2 dock of the D., M. & N. road at this city has been completed and put into service. The dock is 57 feet high, is 2400 feet long, aside from approaches, and contains 197 pockets on each side. It is the largest ore dock in the world, being no longer but some higher than No. 1 dock close beside it. It is worthy of note that when the "Smeaton" loaded there last week the ship was found too high for the dock and had to be sunk by filling its water bottom. Ore would not slide from the pockets. The "Smeaton" is 29½ feet depth. The proposed ships of the American Steel & Wire Company are 30 feet deep.

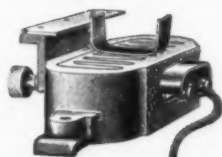


Fig. 6.

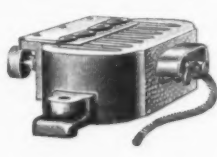


Fig. 7.



Fig. 8.

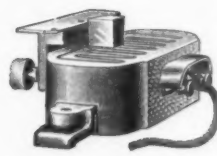


Fig. 9.

Chuck with Simple Back Rest.

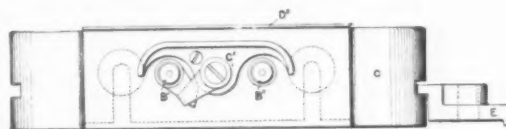


Fig. 10.

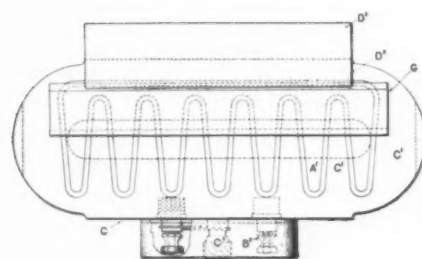


Fig. 11.

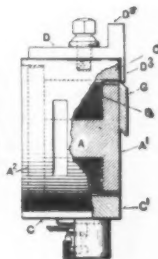


Fig. 12.

### THE WALKER MAGNETIC CHUCKS.

but half over and there is a chance for a betterment later. The advent of new ships is an interesting feature of the situation as is the increased depth of waters. Last week two new boats came out, both of them record breakers, one the "Manila" of the Minnesota Company and the other the "Smeaton" of the Bessemer Line. One took a cargo of 8237 net tons from Two Harbors, the other 8259 from Duluth. The largest preceding cargo on the lakes was 7952 net tons by the "John Fritz" from Duluth. The "Douglas Houghton" of the Bessemer Line is expected out in a week or two and will carry about 7700 net tons. Some ships are now loading to 18½ feet and the water of the connecting channels is gradually deepening.

On the Mesaba range the property known as the Hibbing town site has been sold for a large sum, about \$275,000, to one of the large operating companies. The property has been well explored and is a large one. It consists of 80 acres. A more important deal that for the Eveleth town site, which has been hawked about by the owners, has been closed and has gone to the P. L. Kimberley interests for a sum that can be announced next week. The owners asked competitive bids from mining companies for the lease to this mine, but the larger concerns did not take kindly to such a method and three of the heaviest companies operating hereabouts did not put in bids. The mine will doubtless be a very important one and of high grade. It is in the same formation as the Fayal and the Adams. Explorations at the Adams are finding the mine much larger than had been hoped, the ore extending far to the north under the taconite, and there seems no reason why such extensions should be an uncommon occurrence on that range. One Mesaba mine that has been generally regarded as a small property is now working not far from 500 men and is sending out two

It is reported that the Eastern Minnesota will build a new dock at the head of the lake the coming winter with storage capacity for about 70,000 tons, which will make it the biggest of all. As this dock will handle the business of these new Steel & Wire ships it ought to be at least 60 feet high, thus making a new mark.

Gogebic shipments are not holding up to anticipations and there are fears that the range has passed its best days, though I have faith to believe that more deposits will be found from time to time. Probably the Germania and Minnewawa mines near Ironwood, the last still idle old properties there, will reopen soon under management of the Hayes Iron Company.

Work at the Dexter, taken last week by the Minnesota Company, is for a time being directed in person by D. H. Bacon, manager of the company. The old mine is said to be showing up well. Water is out of the Imperial and mining is begun. The old and long abandoned Goodrich is to be reopened shortly. The Lake Superior Company have started a drill at work near Winthrop and have prospects of finding ore there. Their property in this section is of great value. All the lands of the company that show reasonable indications will be explored as soon as may be by the new owners, the Oliver Company.

Persons holding claims against the old Escanaba River Land & Iron Company have received a third of the amounts due them and will probably get the rest. This company owned the Swanzy mine, the sale of which at the better prices lately obtained has helped the creditors materially. The Barasa has finally reached ore, after being in ground that looked most favorable for some months. The deposit has been worked in for a week now and is similar to that of Negaunee mine.

Escanaba ore shipments are now about 300,000 tons per



week from the Menominee range and a little from the Gogebic. There are 20 Menominee mines shipping there and at Gladstone.

D. E. W.

## The Coke Industry in 1898.

WASHINGTON, July 25, 1899.—The United States Geological Survey has completed its report upon the production of coke in the United States during 1898. The constantly increasing consumption of this important product for metallurgical purposes gives a special interest to the following abstract:

"Recent developments in the construction of by-product ovens where the by-products of gas, tar and ammonia are given equal importance with the coke have rendered it necessary to depart from the previous rule of the survey to eliminate statistics referring only to coke obtained in the manufacture of illuminating gas. So long as the coke is the primary product, and particularly when the coke is used for metallurgical purposes, its comprehension in these reports is necessary and proper.

"The completion of the bank of 400 ovens at Everett, near Boston, Mass., has been attained as this report goes to press. The product from these ovens while not being primarily blast furnace, foundry or other metallurgical coke, will be the output from Otto-Hoffman ovens similar to those at Johnstown and Otto, Pa., and although made from coal to be drawn from Nova Scotia mines may be properly considered as coming within the scope of these reports and will be so included. As the by-product coke industry develops and extends, as it is sure to do, the scope of this report will necessarily be enlarged. In anticipation of a demand for information as to the amount and value of gas and other products obtained from coal which are produced in the United States the survey has collected from the gas companies and by-product coke producers the statistics of the production of gas, tar, ammonia and gas house coke during 1898 and these are presented separately.

"The coal used in coking in the United States is drawn from all five of its great bituminous coal fields, the Appalachian, the Central, the Western, the Rocky Mountain and the Pacific Coast. The Appalachian field is the great source of supply, for while there are 13 coke producing States outside the Appalachian field to nine within it the output outside of the field in 1897 was only 546,954 short tons out of a total product of 13,288,984 short tons, and in 1898 the product outside the field was 660,824 tons out of a total of 16,047,209 tons. From this it will be seen that the States in the Appalachian coal field contributed more than 95 per cent. of the total coal product of the United States.

"The statistics of the production of coke in the United States show that the output in 1898 was more than 20 per cent. in excess of any previous year in the history of the industry. Exclusive of the coke produced in gas house retorts, and which is not considered in these reports, the coke product of the United States in 1898 amounted to 16,047,209 short tons, against 13,288,984 short tons in 1897. The increase in the product in 1898 as compared with the preceding year was 2,758,225 short tons, or 21 per cent. Prior to 1898 the maximum yearly product was obtained in 1895, when the output amounted to about 45,000 tons more than that of 1897. Some idea of the rapid growth of the coke making industry in the United States may be obtained from the statement that the product in 1898 was 7,500,000 tons, or nearly 90 per cent., more than that of 1888, and nearly five times that of 1880, the first year of which there is any record.

"Notwithstanding the fact that the enormous production in 1898 was induced by a demand which was for a greater part of the year at least fully up to the supply, there was a decline in values, the average price per ton falling from \$1.66 in 1897 to \$1.59 in 1898. The aggregate value showed an increase from \$22,102,514 in 1897 to \$25,586,699 in 1898, a total gain of \$3,484,185, or 16 per cent., as compared with 21 per cent. increase in production. All of the more important coke producing States share in the declining price. In Pennsylvania the average price per ton declined from \$1.53 to \$1.50, in West Virginia from \$1.31 to \$1.26, in Alabama from \$2.14 to \$2.03, in Virginia from \$1.40 to \$1.32, in Colorado from \$2.92 to \$2.59 and in Tennessee from \$1.81 to \$1.63. These six States named in the order of their producing rank contributed 15,703,907 short tons, or 98 per cent. of the total product, in 1898. Tennessee, the smallest of the six in producing importance, had the product in 1898 of 394,545 short tons. Pennsylvania's production increased 1,748,378 short tons, or 19.5 per cent.; West Virginia increased 452,405 short tons, or 30.7 per cent.; Alabama increased 220,003 tons; Virginia increased 177,094 tons, or 50 per cent.; Colorado

132,155 tons, or 38.57 per cent., while Tennessee's increase was only 7 per cent., or 25,776 tons. It must be borne in mind that in this statement the production of New York is included in Pennsylvania, from which the coal is drawn, and Colorado includes the production of Utah, but in neither of the included States was the production sufficiently large to affect the totals or percentages.

"The number of ovens built increased from 47,668 in 1897 to 48,447 in 1898. At the close of 1897 545 ovens were in course of construction, including 120 Semet-Solvay by-product ovens building at Ensley, Ala.; at the close of 1898 1048 ovens were in course of construction, including 400 Otto-Hoffman by-product ovens at Everett, near Boston, Mass., and 100 or more of the same type in the Alleghany Mountain district (Johnstown), Pennsylvania. The number of by-product coke ovens in existence at the close of 1898 was 550, including 280 Semet-Solvay, 180 Otto-Hoffman and 90 Newton-Chambers, 30 of the last, however, not being operated as by-product ovens, leaving 520 active. In 1897 the number of active by-product ovens in existence was 280. On December 31, 1897, 195 by-product ovens were building, all of which were completed in 1898, and the close of the latter year saw 500 more in course of construction, 400 of which were put into operation in the summer of 1899.

"The following figures show the production of coke in the leading fields of Alabama, Colorado, Pennsylvania, Tennessee, Virginia and West Virginia.

"Alabama.—Establishments, 25; ovens built, 5456; ovens building, 100; coke produced, 1,663,020 short tons; value, \$3,378,946; yield of coal in coke, 59 per cent.

"Colorado.—Establishments, 12; ovens built, 1253; ovens building, 3; coke produced, 474,808 short tons; value, \$1,230,428; yield of coal in coke, 59.1 per cent.

"Pennsylvania.—Establishments, 151; ovens built, 27,157; ovens building, 292; coke produced, 10,715,302 tons; value, \$16,078,505; yield of coal in coke, 65.7 per cent.

"Tennessee.—Establishments, 15; ovens built, 1949; ovens building, 40; coke produced, 394,545 tons; value, \$642,920; yield of coal in coke, 54.6 per cent.

"Virginia.—Establishments, 6; ovens built, 1564; ovens building, none; coke produced, 531,161 tons; value, \$699,781; yield of coal in coke, 62 per cent.

"West Virginia.—Establishments, 87; ovens built, 8659; ovens building, 161; coke produced, 1,925,071 tons; value, \$2,432,657; yield of coal in coke, 61.2 per cent.

"Total of all States.—Establishments, 342; ovens built, 48,477; ovens building, 1048; coke produced, 16,047,209 tons; total value, \$25,586,699; average yield of coal in coke, 63.6 per cent.

"The number of firms engaged in the industry in 1898 was 284, an increase in 15 years of only a little more than 20 per cent., whereas the number of coke ovens has increased 140 per cent. In the same period the coke product has increased over 200 per cent., illustrating very clearly the tendency of carrying our large industrial enterprises under one management rather than to distribute the business among the large number of smaller concerns. In 1883 the average number of ovens to each firm or corporation was 79, and the average yearly production by each firm about 23,600 tons. In 1898 the average number of ovens to a firm was 171, and the average production per firm 56,500 tons, showing that while the number of firms has increased only about 20 per cent. in 15 years, the average number of ovens to each has increased 120 per cent., and the average production per firm 140 per cent.

"Of the 284 firms and corporations from whom reports were received in 1898 53 produced no coke. The total number of ovens owned by these 53 firms was 2686, an average of 50 ovens each. One of these firms owned 200 ovens, and 11 others owned between 100 and 150 each. From this it is seen that only one of the idle firms owned as many as the average number of ovens to a firm in 1898, and it appears that nearly all of the idle firms were small producers. In addition to these there were 428 ovens idle, which were portions of plants that produced coke in 1898. All of these latter were in Pennsylvania. The total number of ovens idle in 1898 was 3114, which deducted from the whole number of 48,447 leaves 45,333 ovens in active operation during the year. These, distributed among the 231 active firms, made an average of 196 ovens to each, as against an average of 50 for the idle ones.

"Of the total number of ovens 3114 were not operated in 1898. The idle ovens were distributed as follows: Pennsylvania, 1531, or 5.5 per cent.; West Virginia, 568, or 6.6 per cent.; Alabama, 286, or 5.25 per cent.; Ohio, 190, or 4.3 per cent.; Kentucky, 150, or 5.1 per cent.; Tennessee, 128, or 6.6 per cent.; New Mexico, 76, or 40 per cent.; Montana, 100, or 33 per cent.; Indiana, 40, or 43 per cent.; Colorado, 30, or 25 per cent.; Kansas, 9; Virginia, 4, and Missouri, 2." W. L. C.

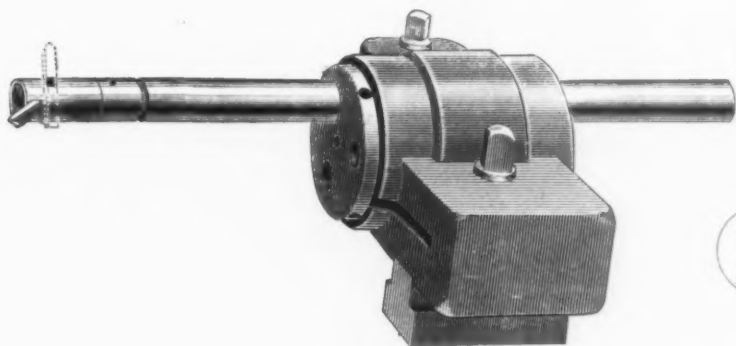
## Canadian News.

### Iron Bounties Bill.

TORONTO, July 22, 1899.—On the 18th inst. the Iron and Steel Bounties bill passed the House. Mr. Mills, representing Annapolis, N. S., protested against bounties being paid on pig iron produced from imported ore. He contended that Canada had plenty of ore of its own. Sir Charles Tupper begged Mr. Mills not to press his opposition to the bill. Mr. Haggart, ex-Minister of Railways and Canals, took the same view as Mr. Mills. Sir Charles Tupper expressed his surprise at his old ministerial colleague's attitude, reminding Mr. Haggart that the measure was practically the same as the one he had helped to frame years ago. Sir Charles asked how the iron mines could be developed without providing for the establishment of furnaces. Sir Charles further urged that Newfoundland ores be put on the same basis as domestic ores—that is, that the pig iron made from them receive a \$3 bounty instead of the \$2 bounty paid on the product of foreign ores. He believed such liberality would have an influence to bring Newfoundland into the Dominion. It is to be remembered, however, that Sir Charles Tupper represents Cape Breton in the House and that he is naturally favorable to the plans of the Dominion Steel & Iron Company, whose ore is to be drawn largely from Newfoundland. Mr. Bennett, representing North Simcoe, the constituency in which Midland is situated, spoke strongly in favor of charcoal iron receiving a special bounty. A new charcoal iron furnace is being constructed in Midland.

### Buying in the Atikokan Range.

The well-known McKellar iron claims in the Atikokan range, about 100 miles from Fort William, in the Rainy River district, are now under negotiation, if they have not already passed into the hands of an American syndicate. According to editorial announcements in the Fort William *Journal* and Port Arthur *Herald* \$10,000 have



THE CHAMPION BORING TOOL ATTACHMENT

already been paid down and an agreement has been entered into for the payment of \$350,000 more six months after the Ontario & Rainy River Railroad has been extended to the range. The range rises to about 150 or 200 feet above the surrounding level. It was discovered about 15 years ago and was taken up entirely by local people, among them being the McKellar Brothers, Graham & Horne of Fort William and Thos. Marks & Co. of Port Arthur. The ore is magnetic and according to tests made at several points carries 65 per cent. of metallic iron. The railway will skirt along the south side of it. The particular property in transfer is 1200 acres in extent, comprising 15 locations. Besides being pronounced upon favorably by specialists like Professor Bell of the Geological Survey it has been reported upon in very approving terms by United States experts. It is stated to be the intention of the provisional purchasers to begin to develop the property the moment it passes into their hands. This, taken in connection with the standing offer of a bonus of \$50,000 per annum by the town of Port Arthur, points to the probability of iron manufacturing developments at the latter point. During the past year an American iron company made several purchases, in all some thousands of acres, in Thunder Bay district. The company's agent is still in Port Arthur and in communication with parties owning iron ore lands.

### Trade Items.

The increased business of the Dominion Bridge Company has decided the management to make an addition to the works at Lower Lachine. The addition will enable the company to increase the output by 40 per cent. and to employ from 60 to 80 hands more than at present.

## The Champion Boring Tool Attachment.

The boring tool attachment made by the Western Mfg. Company of Springfield, Ohio, may be adjusted to any lathe. In ordinary boring or thread cutting, particularly where the cut is long, more or less trouble arises from the cutting tool springing away from the work. The attachment here shown is strong and rigid, and holds three different sizes of boring bars. In order that it may be fitted to lathes of different sizes extra T-blocks are provided. In attaching this fixture to a lathe the tool post is removed, and the T-block put in its place, the back bolt of the attachment being tightened only sufficiently to bring the block up firmly in the tool post slot of the lathe. To adjust the attachment to different heights of lathes the steel collar that binds the boring bar is loosened and the turret head turned with a spanner, as may be required. At the same time the boring bar is turned in the head so that the cutting tool will be in the desired position for the work. As will be seen from Fig. 3 the boring bar is provided with several openings, so that the cutters can be set at different angles.

**The Stover Mfg. Company.**—The Stover Mfg. Company, Freeport, Ill., makers of the Ideal wind mill and the Ideal feed mill, together with a line of hardware spe-

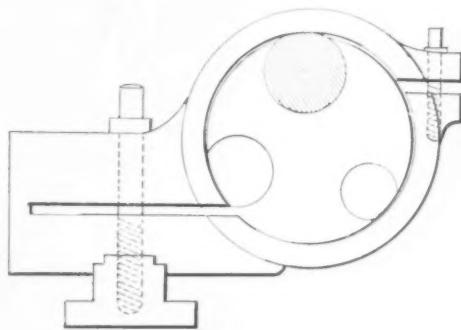


Fig. 2.—End View.

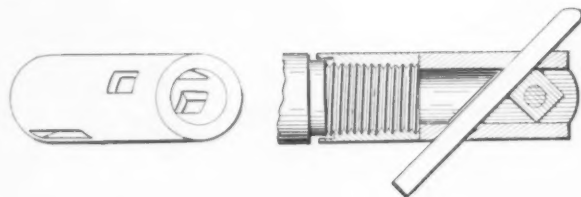


Fig. 3.—Section.

cialties, have decided to erect a large plant particularly for the manufacture of their wind mills, feed mills and other implements. They are being crowded out of their present quarters by a volume of business which is too large for their facilities. The buildings which they propose to erect will be of a substantial character and composed largely of stone, brick and steel. They will be in almost every case one story high. The plant will cover about 5 acres to start with and will be constructed on plans that will permit expansion. Building operations will begin at an early day, so as to have the new works ready for use by the first of the year. The present plant will be utilized for the hardware section of the company's business and the greater room will permit that to be greatly increased. A much larger force of men will be employed. The company have for some time been obliged to buy part of their lines outside for the want of sufficient factory room but with the addition now contemplated they will be enabled to manufacture in quantities sufficient to meet the requirements of their trade.

A new steel works is about to be constructed at Terneuzen, on Dutch territory but near the Belgian frontier, at the mouth of the Scheldt, opposite Flushing. This installation will consist of three Bessemer converters, with a capacity of 450 tons per day, and one open hearth furnace of 50 tons capacity per day. In addition to producing sheets all descriptions of sections, channels, angles and girders will be rolled. Besides these new works a steel plant is about to be erected near Antwerp. This undertaking will be equipped with open hearth furnaces and rolling mills will be installed for the production of sheets.



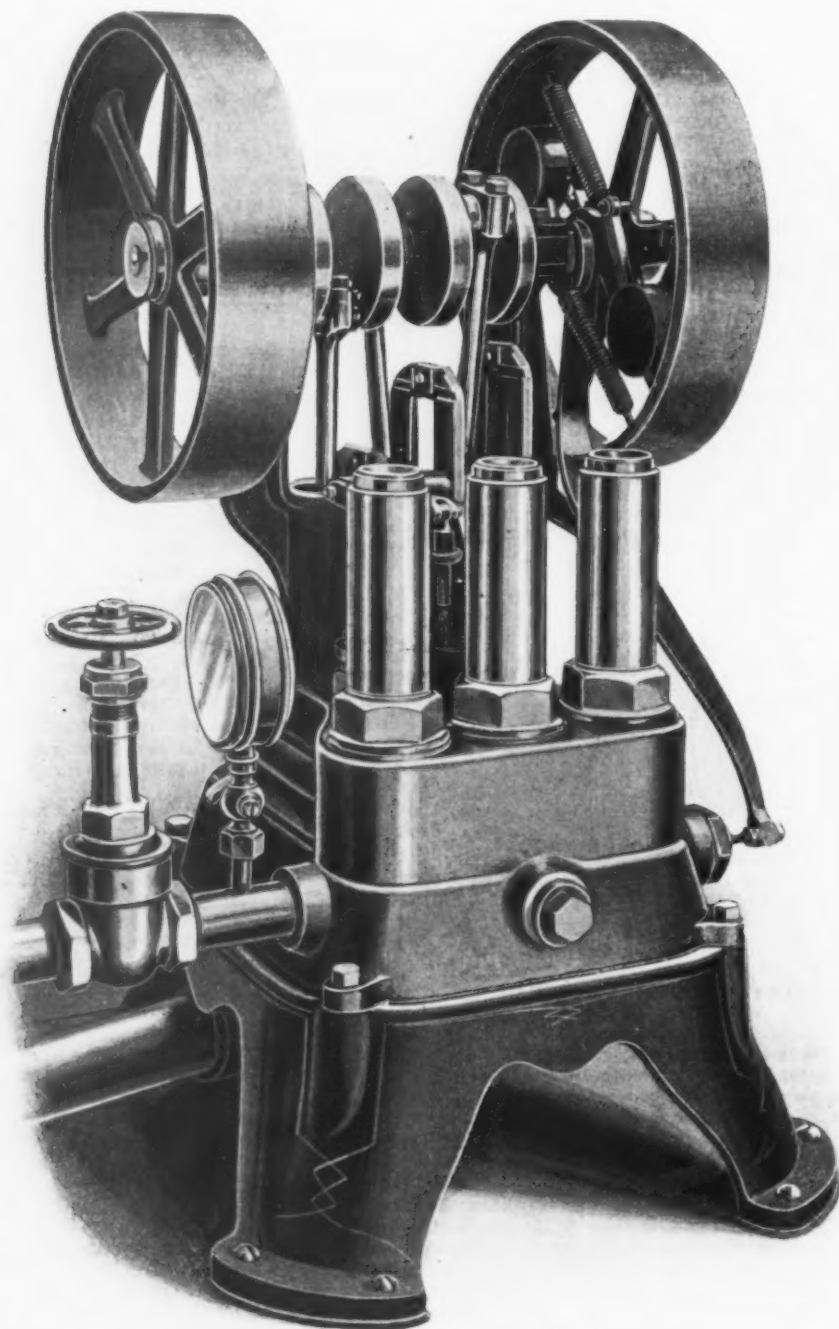
### The Johns Hydraulic Engine.

The Johns engine, built by the Elmira Mfg. Company, 159 Greenwich street, New York, is operated by water pressure. It resembles the ordinary reciprocating high pressure steam engine in general form, but differs from the latter in details, among which are the shape and location of its inlet and outlet valves and the addition of air chambers and check valve, by which the pressure produced by the momentum of the water in the supply pipe is stored for use in the next stroke of the engine. The

stroke only is that of the water supply mains, but on the second and all succeeding strokes the pressure is largely increased by the hydraulic ram action which is produced by the appliance mentioned and without any loss of water." The engine is built in sizes from  $\frac{1}{4}$  horsepower up.

#### Design of the Engine.

We cannot better describe the design and construction of the engine than by quoting from the patent specifications. The water is admitted periodically to the cylinders, the object being to produce and utilize, as a motive



THE JOHNS HYDRAULIC ENGINE.

engine uses this stored pressure during a portion of its stroke. It is claimed that "the average in the cylinder is much greater than the pressure in the supply mains, and the engine thereby develops power in excess of the pressure of the mains." It is further stated that the "engine develops all the power which is in the weight and momentum of the water, using much less water and exceeding largely the power obtained by the ordinary water motor or turbine wheel, whose power depends upon the weight of water alone, and which it does not use to its full extent." Again quoting from the manufacturers' description, "the pressure in the cylinder for the first

power, and in addition to the power given by the direct pressure of any given head of water, the pressure or blow produced by suddenly checking the momentum of the water flowing to the cylinder by the closing of the inlet valve to the cylinder; in other words, to apply the principle of the hydraulic ram to a hydraulic engine. The engine is of the three-cylinder vertical single acting type. The cylinders rise from a chambered base formed of one casting. The supply chamber S, Figs. 2 and 4, is common to all. From this chamber separate inlet passages N lead to the valves for each cylinder, a check valve, C, being provided to prevent back flow to the supply



chamber. Above each of the inlet passages is an air chamber, A. Back of the supply chamber and beneath the cylinders is an exhaust chamber, E, and between this chamber and each of the inlet passages are ports, Z, which open to the bottom of the cylinders, and are put in communication alternately with the passages N and the common exhaust chamber E by the valves V. An outlet passage, E', is carried up above the exhaust chamber, and the exhaust pipe is coupled into this outlet passage at a point to hold the water in the ports and clearance spaces in the cylinders against the pistons when at the ends of their return strokes. The water is thus trapped in the exhaust chamber, in the ports Z and in the cylinders, and is held in contact with the pistons when they have completed their return strokes, but without exerting back pressure upon them. This prevents the formation of a partial vacuum or the admission of air below the pistons. To prevent siphonage of water

of these rods may be so adjusted as to bring this shoulder *r'* properly in its seat when the valve is in its lowest position. The bent out portions of the slotted cam arms G and the reduced portions of the valves are so located and of such length and formation as to cause the valves to open the port Z to passage N immediately after each piston has begun its upward stroke, and to close the port Z to passage N and open into the exhaust chamber E just before the pistons reach the top of their stroke, in order that the water may follow the pistons for the full stroke, and that there may be no back pressure against the pistons on their return stroke.

In operation the water from the main supply will pass into the supply chamber S and thence into the inlet passages N according to the opening of the valves V. Upon the quick closing of each valve V there will be a sudden stoppage of the flow of water through the corresponding passage N, but the water will continue to flow from the supply chamber S past the check valve C into the air chamber A, compressing the air therein until the momentum of the water is checked, after which the check valve C will close, holding the air chamber A in a compressed state, this compression varying according to the size of the air chamber and the pressure of the water

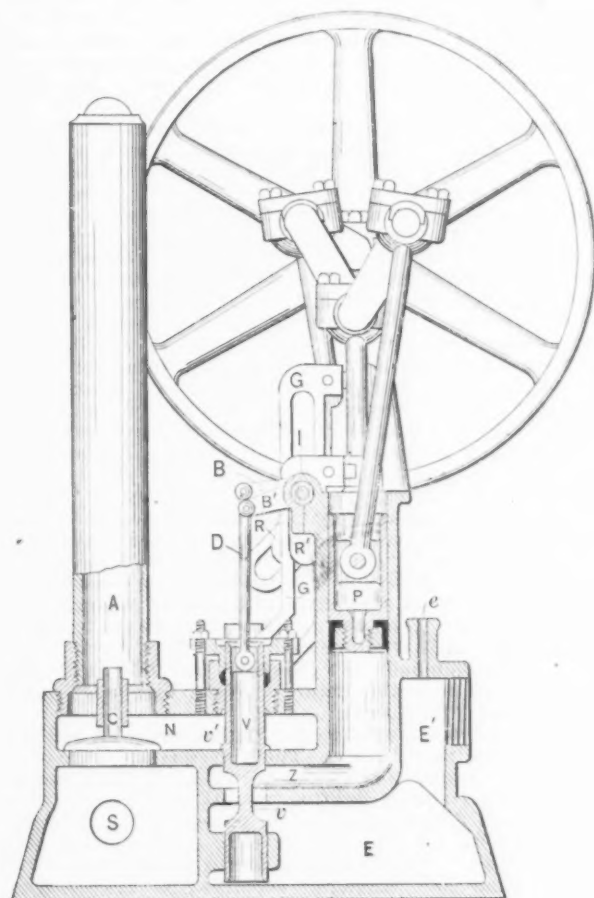


Fig. 2.—Sectional Side Elevation.

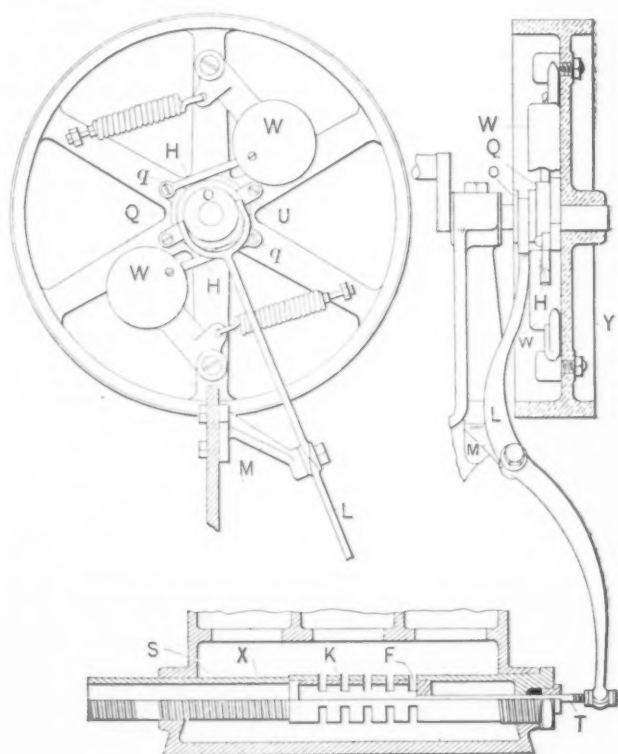


Fig. 3.

Fig. 4.

The Governor.

## THE JOHNS HYDRAULIC ENGINE.

from the exhaust chamber through the exhaust pipe a vent pipe, *e*, is provided at the top of the passage E'.

Within the cylinders are the pistons, which are connected to the crank shaft above, the cranks being set at angles of 120 degrees. At one side of each piston is a vertical extension to which is connected a slotted cam arm, G, which extends downward at the front of the cylinders and is provided with an outward bend at the bottom end. At the front and top of the cylinders and journaled in suitable boxes is a series of valve levers, B, R, B', R', the arms on these levers being provided with pins carrying rollers, which run in the slots in the cam arms G, and the arms B, B', being connected to the valve rods D for operating the combined inlet and exhaust valves V. Each of the valve levers B, R and B', R' is provided with a hollow hub, which are journaled in suitable boxes. From the third arm of the third valve lever (not shown on drawing) a rock shaft, I, runs through the hollow hubs of the other valve levers, connecting the third arms together.

The valves V, as will be seen, are balanced valves of the piston type, being open at the top to the atmosphere and at the bottom to the exhaust chamber, which is also under atmospheric pressure, the valve stem having the same diameter as the valve. A shoulder, *c'*, seats on the partition between the passage N and port Z. The length

supply. Upon the next opening of the valve V the compressed air in the air chamber will force the water under this increased head or pressure into the cylinder during the initial up or forward stroke of the piston, this increased pressure gradually diminishing until the normal pressure of the water supply has been reached, after which the check valve C will open and water will flow in from the supply chamber through the passage N until the next closing of the valve V, after which compression in the air chamber will again take place.

Since the water is held in the ports and against the pistons by reason of the raised exhaust outlet, when admission takes place the compressed air in the air chamber will have effect directly upon the pistons through a continuous interposed water piston, and none of the effect will be lost upon the pistons, as would be the case were air allowed to accumulate or a partial vacuum produced below the pistons. The passages N being closed to the ports Z during somewhat more than half a revolution of the engine or during the return of the pistons and their pauses at the ends of their strokes, ample time is given for the momentum of the water in the inlet passages to fully expend itself in compressing the air in the air chambers and for the water trapped by the check valves C to become quiescent ready for the next period of admission to the cylinders. It is only by this pause be-

tween admission periods that this ram action can be fully accomplished, and it will be seen, therefore, that such periods of shut off from the inlet passages to the cylinder ports must be provided in whatever type of engine invention is applied to. It is also important that the check valves should have a small lift and close quickly, in order that the back flow to the supply chamber shall be checked immediately the flow of water into the air chambers has ceased, and, therefore, more than one check valve may be used for each inlet passage, especially in the larger sizes of engine. It is also important that all air should be excluded from the ports, passages and exhaust chamber, and for this purpose suitably located air cocks are provided, whereby any entrapped air will be driven out when the engine is first started.

By employing a three-cylinder engine the crank shaft receives three impulses in excess of the normal water pressure during each revolution, and the total effective pressure is greater and more evenly imparted to the crank shaft than in the case of a one or two cylinder engine.

#### The Governor.

The governor is shown in Figs. 3 and 4. It is of the centrifugal fly wheel type, and comprises two weights, W, W, pivoted to the arms of the fly wheel and provided with tension springs in the usual manner. From the weights run connecting rods, H, which are coupled to ears q, q on the collar Q, this collar being mounted to turn on the hub of the fly wheel. This collar is also provided with flanges, which are engaged by guide blocks U, U fastened to the fly wheel and projecting over the flanges, whereby the collar is rendered free to revolve upon the hub, but is held from longitudinal motion. On the inside of the collar Q are provided two spiral grooves, which engage pins on the rearwardly projecting arms on the ring O. These arms on the ring slide in slots in the hub, whereby the ring is carried around with the main shaft and fly wheel, but is free to be given longitudinal motion along the shaft by the action of the spiral grooves upon the pins on the arms. An arm, L, is pivoted to a bracket, M, projecting from the frame of the engine and at the upper end is provided with a yoke, having inwardly turned projections which engage the grooves on the ring O. At the other end the lever L is connected to the rod T, which passes through a stuffing box in the end of the ported pipe K, which abuts against the inlet pipe X in the supply chamber S. A ported valve, F, is attached to the rod T and the position of this valve with reference to the ports in the pipe K more or less regulating the supply of water to the chamber S according to the speed of the engine.

The operation of the governor is as follows: When the speed of the engine increases the weights are thrown out, causing the collar Q to turn to the right, in Fig. 3. This revolution of the collar on the hub of the fly wheel causes the ring O to travel away from the fly wheel, thus throwing the valve rod T outward and causing the valve F to close the ports in the pipe K more or less and regulating the supply of water to the chamber S according to the speed of the engine.

#### The Iron and Steel Institute.

The autumn meeting of the Iron and Steel Institute will be held at Manchester on August 15, 16, 17 and 18 next. The following papers have been promised for reading:

1. "On the Constitution of Steel." By Prof. E. D. Campbell, Ann Arbor, Mich.
2. "On Diffusion in Steel." By F. W. Harbord and Thomas Twynan, Cooper's Hill Engineering College.
3. "On the Magnetic Concentration of Iron Ore." By H. C. McNeill, London.
4. "On India as a Center for Steel Manufacture." By Major R. H. Mahon, Cossipore.
5. "On Pig Iron Fractures and Their Value in Foundry Practice." By J. W. Miller, London.
6. "On Practical Microscopic Analysis for Use in the Steel Industries." By C. H. Ridsdale, Guisbrough.
7. "On the Relation Between the Structure of Steel and Its Thermal and Mechanical Treatment." By Albert Sauveur, Boston, U. S. A.
8. "On the Present Position of the Solution Theory of Carburized Iron." By A. Stansfield.
9. "On the Iron Industry in the Territory of His Highness the Nizam." By Shamsul Ulama Syed Ali Bilgrami.
10. "On a New Casting Machine for Blast Furnaces." By R. Hanbury Wainford, Stoke-upon-Trent.
11. "On the Utilization of Powdered Iron Ore." By Prof. J. Wiborgh, Stockholm.

A second series of experiments for the French Government were commenced by Signor Guglielmo Marconi on June 15, messages being sent from the "Vienne," a

French transport, to land stations up to a distance of 42 miles. The mast of the cruiser has a height of only 90 feet. Wimereux, near Boulogne, and the South Foreland Lighthouse on the Kentish coast, were used as the land stations. The greatest distance appeared to have no effect, the messages, it is stated, being recorded at the receiving station at the South Foreland with unvarying distinctness. Messages were exchanged while the vessel was traveling at various conditions of speed, with the same result. An interesting feature in the experiments was stated to be the facility with which Mr. Marconi's latest development for cutting out a station was applied.

#### The Increases in the Navy.

The present fighting strength of the United States Navy is to be almost doubled within the next few years. More than three score ships of the most approved types of modern war craft are to be added to the service within that period. A number of these vessels are already nearing completion while others are well under way as to construction.

The most substantial and by many deemed the most necessary increase in the navy's strength will be in the matter of battle ships. At present we have but five ships of this class—the "Oregon," "Iowa," "Indiana," "Massachusetts" and "Texas." This number is to be increased to 16 by the addition of 11 vessels now building or about to be laid down. The new battle ships will be named the "Kearsarge," "Alabama," "Illinois," "Kentucky," "Wisconsin," "Missouri," "Maine," "Ohio," "Pennsylvania," "New Jersey" and "Georgia." The "Kearsarge," "Kentucky" and "Illinois" are building at Newport News, the "Alabama" at Philadelphia and the "Wisconsin" at San Francisco. The "Kearsarge" is 91 per cent advanced toward completion, the "Kentucky" 89 per cent, the "Alabama" 85 per cent, the "Wisconsin" 70 per cent, and the "Illinois" 65 per cent. The "Maine" and "Ohio" are at the first stage of construction. The others are yet to be laid down.

The present make up of the navy shows a lack of armored cruisers, the number being limited to two—the "New York" and "Brooklyn." In the last Naval Appropriation bill provision was made for the construction of three vessels of this class, although of a much more formidable type. The new armored cruisers are to have a displacement of 12,000 tons each; the "New York" is of 8480 tons burden and the "Brooklyn" of 9153 tons. The ships are to bear the names "West Virginia," "Nebraska" and "California."

Of protected cruisers the navy is to receive an addition of six in the near future. These vessels are to be of an ideal type of cruising craft, possessing great steam radius, together with strong fighting qualities. They are to be of 3400 tons displacement when equipped for a cruise. This is about 400 tons greater than the displacement of the "Raleigh." The new craft are to be slower by about 2 knots than the "Raleigh," according to the specifications, but this deficiency will be more than made up by the steaming radius they will possess. They will be able to steam at full speed for nearly 3000 miles without replenishing their coal bunkers; at the rate of 10 knots to the hour they can cover very nearly 7000 miles without recoaling.

The value of this quality in a cruising ship has been many times demonstrated in the past few years. A vessel of this type could cruise for a fortnight or more without going near a coaling station or being incumbered by a slow moving collier as a consort. The new cruisers of this class are to be named the "Des Moines," "Denver," "Chattanooga," "Galveston," "Tacoma" and "Cleveland."

The Naval Appropriation bill of last year provided for the building of four double turreted seagoing monitors, intended primarily for harbor defense purposes. These are to be named the "Arkansas," "Connecticut," "Florida" and "Wyoming." They are to have a displacement of 2775 tons and a speed of 12½ knots each.

The other war vessels either building or projected are torpedo boats and torpedo boat destroyers.

Aside from these additions provided for by Congress the navy is being strengthened from other quarters. The cruiser "Albany," a sister ship to the "New Orleans," now building in England, is 80 per cent advanced toward completion. The cruiser "Atlanta," twin ship of the "Boston," which has been long out of service, is being rebuilt and brought up to date at the Brooklyn Navy Yard. The little gunboats "Sandoval" and "Alvarado," captured from Spain in Cuba, are being put in condition for service at the Portsmouth Navy Yard, and the gunboats "Isla de Cuba," "Callao," "Don Juan de Austria" and "Isla de Luzon," captured by Dewey, besides the 12 smaller boats purchased at Manila, have been added to the Asiatic fleet.



# The Iron Age.

New York, Thursday, July 27, 1899.

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## The Western Crop Situation.

The critical period for corn and spring wheat is at hand, and absorbing interest will be taken for two or three weeks in weather conditions. Sufficient rain has fallen to avert fears of drought, which is one great element of danger passed. Hot winds are now the only thing feared, and with no visitation of that character bountiful crops of the great Western staples will bless the country and form a substantial basis for another year's prosperity. The corn crop is especially the great dependence of a very considerable part of the West, and contributes enormously to the business of the railroads. From present appearances the yield will be heavy in almost every section of the great corn belt. If no untoward influence blights the prospect, a "bumper" year will be the record for 1899. Reports from Nebraska and Kansas are especially gratifying, while no State in the belt talks discouragingly of the outlook. Estimates of the total crop, based upon the acreage planted and present condition, place it at about 2,000,000,000 bushels, or up to the highest yield ever known. The crop of spring wheat is also expected to reach higher figures than the average yield, thus to some extent making up the known shortage in winter wheat. In but a short time the tale of the season will be told, and if it is as favorable as now seems likely the continuance of prosperous times will be assured.

## City and Country Workmen.

The demand of the boiler makers of Chicago for shorter hours and higher pay is another of those ill-advised movements which drive trade from large cities. The boiler makers evidently fancy that they are as well entitled to these workingmen's luxuries as plumbers, carpenters and others engaged in the building trades, whose regular working day in Chicago is limited to eight hours, with a half holiday on Saturday in the case of most of them. The boiler maker sees no reason why he should work nine or ten hours every day when these other workmen have such good times, with so much leisure for recreation and recuperation from the effects of their arduous toil. They, however, by the nature of their employment, are not brought in competition as he is with workmen who live in other cities, and therefore their wages are capable of being arbitrarily fixed by the strength of a trade union without serious detriment to any one unless they are placed so high as to check building operations.

Boiler makers and other classes of workmen whose product is of a portable character are subject to far more than mere local conditions. A factory needing a new boiler, and located immediately adjoining a boiler shop, may be able to obtain the boiler cheaper from a country town a hundred miles distant and buys it there. The repair work goes to the neighboring boiler maker, and that is all he gets. The workmen in the country town put in ten hours a day, and their employer sends his cheaply made boilers into all the large cities within reach because his costs are lower. He may pay his

workmen fair wages also, but not at so high a rate as those working in city boiler shops.

It is a well-known fact that in Chicago, and probably in some other large cities, the manufacture of boilers and related work is of comparatively small proportions. The shops which are at all conspicuous, or seem to employ any considerable number of men, are either largely engaged in some specialty to which boiler making is a useful adjunct, or take contracts in which the work of actual boiler makers does not heavily figure. The persistent shortening of hours of labor, the pressure for higher and higher pay and the arbitrary rules enforced by trades unions, which invariably increase the cost of the product, are drying up the business of city boiler shops, and correspondingly building up that of country towns in which labor is free and untrammelled. It would appear as if the city workmen who insist on eight hours with ten hours' pay, and are successful in winning their point, would eventually find their victory without value, as the business of their employers diminishes. Those who are laid off can go to country towns and work longer hours for lower wages. The eight-hour day in the country at large is still very remote.

## The Passing of Receivers.

Under the title "Decline of the Receivership Business," the *Railway Age* gives some interesting statistics in connection with railroads. In the past three years the number of roads placed in the hands of receivers has been decreasing, and the number taken out of receiverships has been increasing, with the result that at the present time the railroad interests under the control of receivers have shrunk very considerably. On June 30, 1897, the mileage operated by receivers, aggregated 18,862 miles, which was reduced the following year 6117 miles, and still further heavily reduced in the past fiscal year, for which accurate statistics have not yet been compiled. The diminution in the number of bankrupt railroads is one of the happiest results of these prosperous times. The "decline of the receivership business" is also noteworthy in the iron trade. Coincident with the railroad receivership era was a period of like developments in the iron trade, which caused much demoralization. Bankrupt iron properties have almost without exception passed into stronger hands, greatly clearing the business atmosphere. This movement has been accompanied by improving financial conditions among that class of iron producers having insufficient capital and relying upon advances from commission houses to enable them to continue their operations. Their independence of outside assistance of this character has been a marked feature of the current year, contributing greatly to the strength of prices. It is to be hoped that the days of forced sales for the purpose of raising money have passed permanently, and that the "receivership business" may never again become a prominent feature of either the transportation or industrial interests.

## Charcoal Iron Regaining Favor.

Not many months since, an unintentional injustice was done in these columns to the Lake Superior charcoal pig iron trade. At that time appearances pointed strongly to the permanent relegation of charcoal iron to an inconspicuous position in the ranks of blast furnace products. Consumers would pay no premium for charcoal smelted pig over the price asked for the same grade of coke pig. No special favor was accorded it even among those time honored friends, the makers of car wheels, who went so far as to declare that old car



wheels had points of superiority over new charcoal pig and were worth more for their purposes. For a time market quotations seemed to verify the correctness of their position. Lake Superior charcoal furnace companies were obliged to keep their prices close to those of coke iron, or they made few sales.

But an error was committed in regarding the conditions then ruling as in any degree permanent. When the revival came in the iron trade the special qualities of charcoal pig were again recognized by those who needed such iron, and again an independent basis of value was established, which is shown in the elevation of prices above those asked for coke iron. As for old car wheels, they have been left far in the rear, and apparently cut no figure whatever in fixing the value of charcoal iron. The pressure for the high numbers of Lake Superior charcoal pig has, in fact, been especially strong for some time, showing that a keen demand for that class of iron is coming from car wheel makers. This development shows the danger of drawing conclusions from conditions prevailing in times of abnormal depression.

### An Admiralty Board Proposed.

A report which is said to have emanated from official circles in Washington is to the effect that upon the return of Admiral Dewey to this country there will be formed what is to be known as an Admiralty Board. The function of this board, it is said, will be the general supervision of the construction and designing of all vessels for the United States Navy, and the final passing on all matters pertaining to such work. It will be the chief official board of the United States Navy, and will in authority be superseded only by the Secretary of the Navy and the President. It is said that its operations will relate more particularly to the construction of vessels and their armament. Designs for new vessels will be necessarily submitted to this board before passed upon, and requests for additional naval fighting machinery will be made through this board. It is said that Admiral Dewey will be the first chief officer of the board, and that other members will be selected according to length of service and distinguished activity in the service. Among the members of the board will be included representatives of the Steam Engineering, Ordnance, Equipment and Construction departments.

In dealing with the question of the consumption of tin, the fact is often forgotten that the transfer of the large part of the tin plate business from Wales to this country has been coincident with increased requirements. The following table furnishes an indication of this:

	Tin plate exports from United Kingdom.	Tin plate production in United States.	Total.
	Tons.	Tons.	Tons.
1891.....	448,379	1,000	449,379
1892.....	395,449	18,400	413,849
1893.....	379,233	55,000	434,233
1894.....	353,928	74,000	427,928
1895.....	365,982	112,500	478,482
1896.....	266,965	155,800	422,765
1897.....	271,909	250,598	522,507
1898.....	251,769	326,915	578,684

This table, of course, does not include the production of other countries, which is small, however. There are no data relative to the production of Wales, so that the exports must be used. This takes out of consideration the English home consumption, which is of some importance.

The United States torpedo boat "Talbot" is being fitted out at the Navy Yard, Norfolk, Va., for a test of oil for fuel. Should the test prove successful it is believed that the smaller vessels of the navy may hereafter use oil. The work upon the "Talbot" is being done under the supervision of F. E. Magee, representative of the Consolidated Gas Fuel Company of New York. Mr. Magee hopes to demonstrate that oil as fuel is 50 per cent. cheaper than coal. It is claimed that 1 pound of this fuel will evaporate 15 pounds of water. One pound of coal, it is stated, will evaporate but 8½ pounds of water. The trial run will be made under the supervision of naval officials.

The New York Filter Mfg. Company of New York City have just completed the shipment of a 1,000,000-gallon filter plant for the city of Chihuahua, Mexico.

## Fluctuations in the Prices of Iron and Steel.

[With Supplement]

The sudden rise in the prices of crude and finished iron and steel has led to a flood of letters from readers of *The Iron Age* asking for figures on many different articles produced in the furnace, the steel plant and the rolling mill. We have in response to these requests prepared the accompanying diagram, which illustrates graphically the fluctuations which have taken place from January 1, 1892, to July 1, 1899. The figures upon which the diagram is based are appended in tabular form. In the diagram itself the prices for the line of finished articles are plotted on the basis of the gross ton in order to bring them on a uniform basis with those of the crude products. In the table the usual quotation on the basis of cents per pound is retained.

Of course the quotations, which represent monthly averages, do not represent the actual prices realized. Every one knows that during the life of pools and agreements, particularly in periods of slow and declining general markets, the established prices are cut in a variety of indirect ways. At times the extras which are supposed to be added to base prices are heavily reduced, and have disappeared altogether. Occurrences of this character are not of course reflected in the diagram, so that on the whole the fluctuations have been really greater than would appear.

In a number of instances we have indicated the cause of some of the sudden drops in the prices recorded. Usually they have been the result of a rupture in some existing association or pool. The efforts during 1896 are notable in this direction.

It will be observed that the rise of the current year has quite generally carried values above the level of the year 1892, which was regarded as a prosperous year in the industry. Since then costs have been generally reduced, so that present prices represent a very handsome earning capacity for modern well located works.

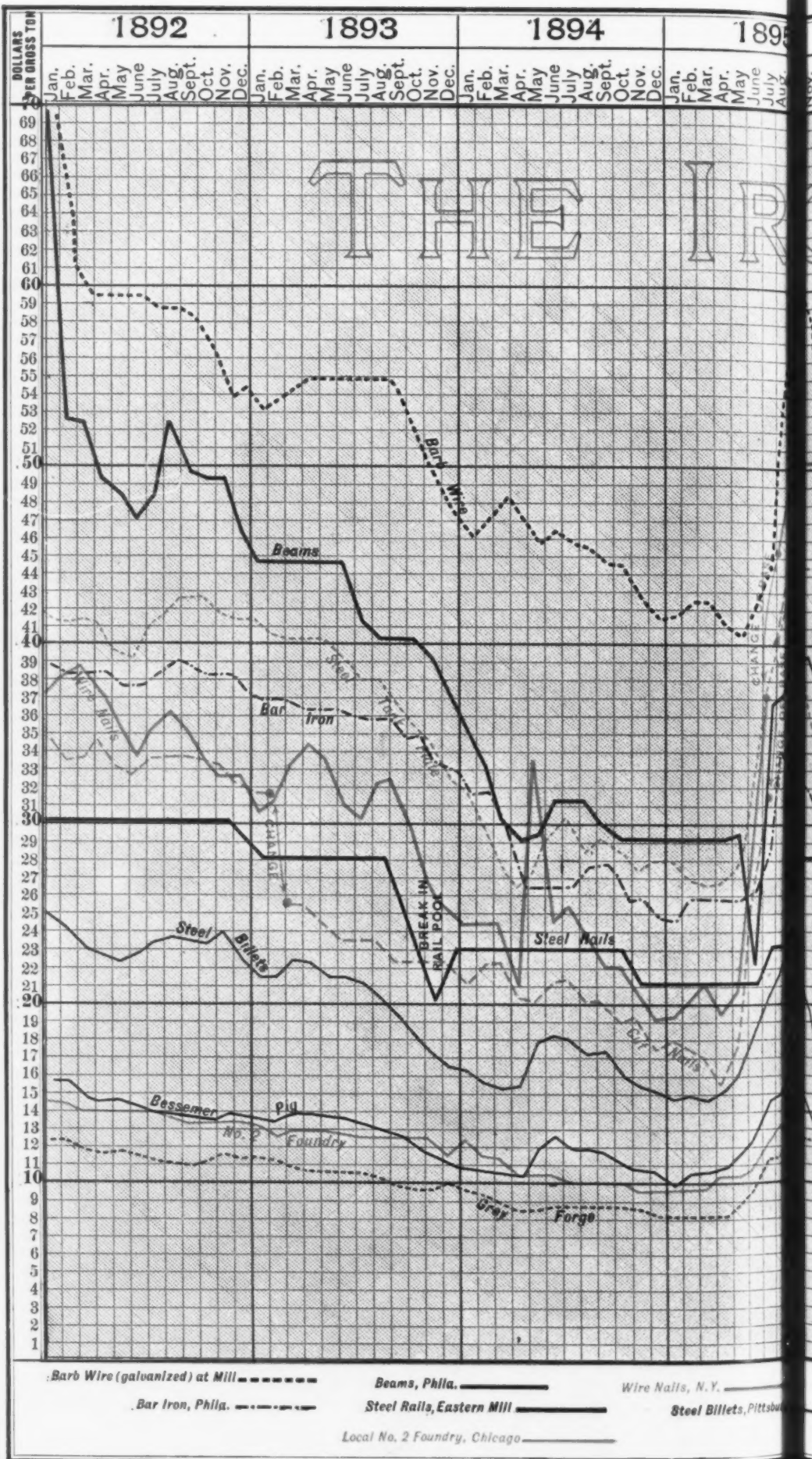
Since the opening of the present month there has been a further notable rise in prices, so that the lines on the diagram continue in their precipitate upward course.

A pretty accurate test of the condition of business is furnished by the periodical returns of the United States Post Office Department. The report of the Department, just published, for the fiscal year ended June 30, 1899, affords additional evidence of the remarkable improvement in business which has taken place during the past twelve months. It is shown that the issue of stamped paper during that period far exceeded, both in number and value, the best previous records of the postal service. The increase for the year in the number of pieces—single stamps, envelopes and postal cards—was from 4,609,318,970 in the fiscal year 1898, the largest up to that time, to 5,162,020,525 in 1899, a net growth of nearly 12 per cent. In point of value of the stamped paper sold the increase was from \$87,300,000 in 1898 to nearly \$96,000,000 in 1899, or close to 10 per cent. The increase over 1897 was very nearly 20 per cent. When it is remembered that population does not increase much beyond 2 per cent. a year, a clearer idea is afforded of the rapid growth of business in the last couple of years.

The Oakman Motor Vehicle Company of America have been incorporated in Delaware, on July 20, with \$5,000,000 of capital stock, of which \$500,000 is 7 per cent. preferred, all in \$50 shares. The company will own all patents pertaining to what is known as the Hertel motor, together with all the rights, property and good will of the Oakman Motor Vehicle Company of Greenfield, Mass., the present owners of the patents, with a view of granting to subordinate companies the right to manufacture and sell motor vehicles covered by the patents in the several States of the United States. The vehicle is propelled by means of a gas motor (hydro-carbon) of 2½ horse-power brake test, double cylinder. Ordinary stove gasoline is used for fuel, one charge being sufficient for a continuous trip of 75 miles; consumption about 1 gallon for 50 miles. The National Trust Company of Philadelphia are receiving subscriptions to the preferred stock at par with a bonus of 100 per cent. in full paid common stock.

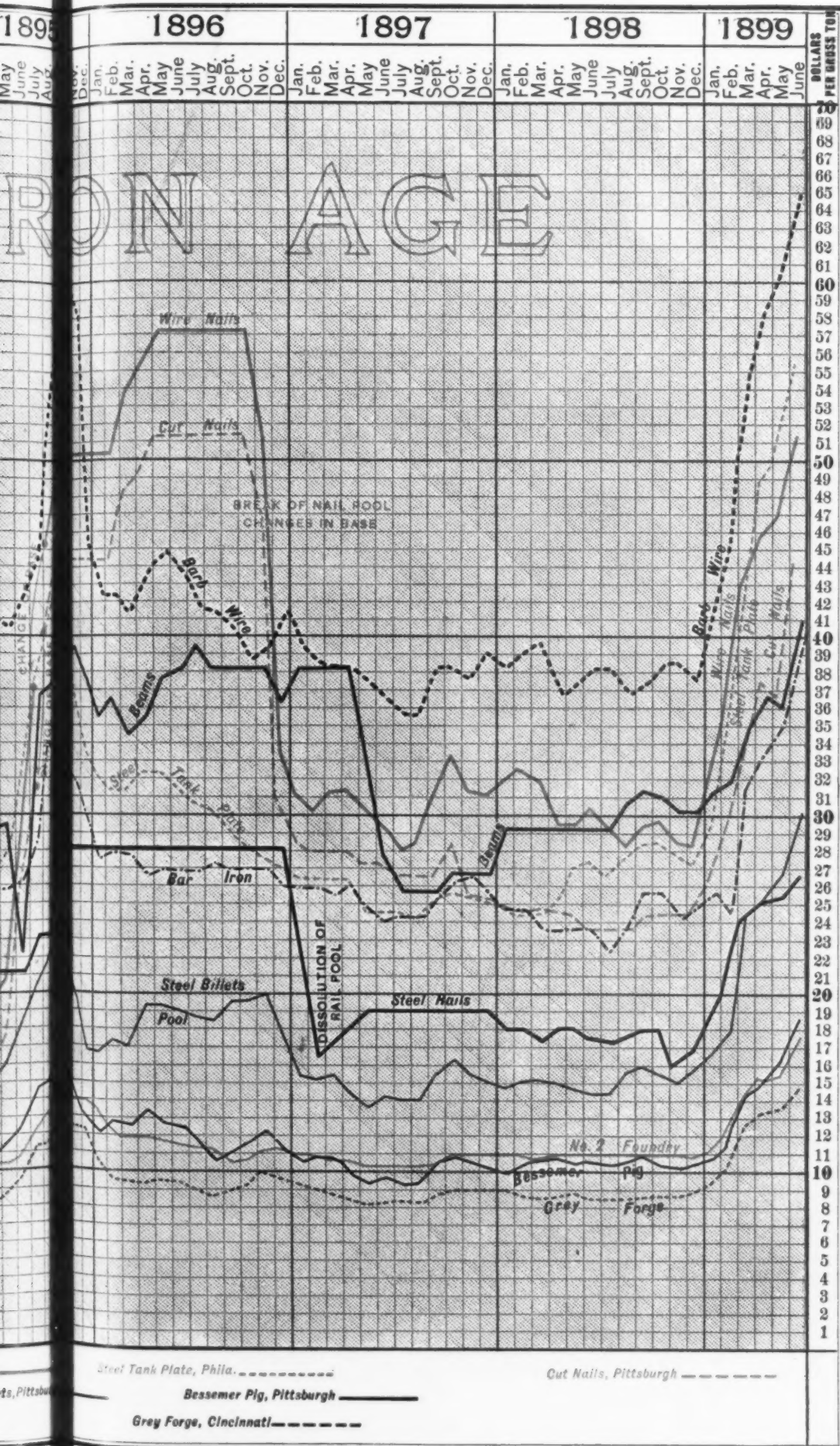
THE UNIVERSITY OF CHICAGO  
PRESS

Month.	Bessemer Pig.	Steel Billets.	Southern Gray Forge.	Local No. 2 Foundry.
1892				
Jan.	15.69	25.00	12.25	14.50
Feb.	15.31	24.36	12.25	14.37
March	14.60	23.00	11.95	14.00
April	14.47	22.81	11.75	14.00
May	14.27	22.41	11.75	14.00
June	14.05	22.97	11.65	14.00
July	14.00	23.50	11.37	14.00
Aug.	13.85	23.81	11.19	13.75
Sept.	13.78	23.65	11.00	13.50
Oct.	13.65	23.53	11.31	13.50
Nov.	13.98	24.94	11.71	13.50
Dec.	13.75	22.40	11.50	13.50
1893				
Jan.	13.46	21.56	11.50	13.37
Feb.	13.32	21.62	11.12	12.81
March	13.63	22.60	10.90	13.00
April	13.65	22.44	10.75	13.00
May	13.41	21.69	10.69	12.96
June	13.37	21.70	10.50	13.00
July	13.07	21.06	10.44	12.79
Aug.	12.57	20.45	10.15	12.75
Sept.	12.16	19.31	9.94	12.75
Oct.	11.44	18.06	9.75	12.75
Nov.	11.17	17.37	9.80	12.75
Dec.	10.87	16.69	9.94	11.69
1894				
Jan.	10.66	16.12	9.75	12.50
Feb.	10.61	15.75	9.44	11.87
March	10.40	15.55	9.00	11.30
April	10.39	15.69	8.50	10.50
May	12.00	18.00	8.50	10.50
June	12.31	18.12	8.62	10.50
July	11.70	18.00	8.75	10.12
Aug.	11.71	17.15	8.80	10.00
Sept.	11.29	17.19	8.75	10.00
Oct.	10.89	16.00	8.75	10.00
Nov.	10.61	15.57	8.50	9.70
Dec.	10.20	15.12	8.37	9.75
1895				
Jan.	9.93	14.90	8.25	9.75
Feb.	10.07	14.95	8.25	9.75
March	10.19	14.84	8.25	9.81
April	10.68	15.44	8.25	10.25
May	11.64	16.30	8.75	10.25
June	12.33	18.63	9.88	10.88
July	14.38	20.75	11.38	12.13
Aug.	14.63	21.75	11.50	13.20
Sept.	17.02	24.00	12.50	13.63
Oct.	15.45	21.90	12.50	14.00
Nov.	13.72	19.13	12.50	14.00
Dec.	12.67	16.97	12.25	14.00
1896				
Jan.	12.00	16.80	10.55	13.55
Feb.	12.63	17.38	9.75	12.50
March	12.32	17.09	9.58	12.00
April	13.10	19.53	9.35	12.00
May	12.64	19.50	9.50	11.69
June	12.35	19.12	9.44	11.50
July	11.88	18.85	9.00	11.25
Aug.	10.95	18.75	8.75	11.18
Sept.	11.25	19.75	9.00	10.75
Oct.	11.62	19.75	9.20	10.88
Nov.	12.05	20.00	9.94	11.19
Dec.	11.24	17.50	9.60	11.25
1897				
Jan.	10.56	15.42	9.31	11.02
Feb.	10.60	15.25	9.00	11.00
March	10.52	15.44	8.94	10.88
April	9.82	14.60	8.40	10.75
May	9.32	13.82	8.19	10.38
June	9.56	14.06	8.25	10.25
July	9.25	14.00	8.45	10.25
Aug.	9.33	14.00	8.45	10.25
Sept.	10.09	15.60	8.80	10.40
Oct.	10.45	16.44	9.00	11.00
Nov.	10.23	15.57	9.00	11.00
Dec.	10.01	15.00	9.00	11.00
1898				
Jan.	9.87	14.93	9.00	11.00
Feb.	10.05	15.06	8.75	10.93
March	10.39	15.25	8.55	10.75
April	10.41	15.06	8.50	10.91
May	10.30	14.85	8.62	11.00
June	10.34	14.65	8.55	11.00
July	10.25	14.50	8.38	11.00
Aug.	10.35	15.85	8.37	11.00
Sept.	10.78	16.00	8.55	11.00
Oct.	10.36	15.56	8.75	11.00
Nov.	10.15	15.06	8.75	11.00
Dec.	10.58	15.80	8.90	11.00
1899				
Jan.	10.87	16.62	9.56	11.12
Feb.	11.60	18.00	10.42	12.12
March	14.59	24.30	12.70	14.60
April	15.03	25.37	13.25	15.12
May	16.20	26.75	13.43	15.37
June	18.51	30.10	14.85	17.60



FLUCTUATIONS IN THE PRICES OF  
FROM JANUARY 1st, 1892





Month.	Cut Nails.	Steel Tank Plate.	Beams.	Bar Iron.	Barb Wire.	Wire Nails.
1892						
Jan.	1.55	1.87	3.10	1.71	3.05	1.67
Feb.	1.49	1.85	2.36	1.70	2.77	1.71
March.	1.50	1.85	2.25	1.70	2.65	1.73
April.	1.55	1.84	2.20	1.70	2.65	1.66
May.	1.48	1.76	2.15	1.67	2.65	1.60
June.	1.47	1.75	2.10	1.67	2.65	1.50
July.	1.50	1.84	2.15	1.70	2.62	1.57
Aug.	1.50	1.99	2.30	1.74	2.62	1.61
Sept.	1.51	1.90	2.22	1.72	2.60	1.57
Oct.	1.50	1.90	2.20	1.70	2.52	1.50
Nov.	1.49	1.87	2.20	1.70	2.41	1.47
Dec.	1.45	1.85	2.07	1.66	2.42	1.46
1893						
Jan.	1.42	1.85	2.00	1.65	2.37	1.37
Feb.	1.42	1.82	2.00	1.65	2.40	1.39
March.	1.15	1.80	2.00	1.63	2.42	1.50
April.	1.15	1.80	2.00	1.62	2.45	1.55
May.	1.10	1.80	2.00	1.62	2.45	1.51
June.	1.05	1.75	2.00	1.61	2.45	1.39
July.	1.05	1.70	1.85	1.60	2.45	1.35
Aug.	1.05	1.70	1.80	1.60	2.45	1.44
Sept.	1.00	1.65	1.80	1.55	2.40	1.45
Oct.	1.00	1.60	1.80	1.55	2.26	1.30
Nov.	1.00	1.55	1.75	1.49	2.15	1.18
Dec.	1.00	1.45	1.67	1.42	2.10	1.12
1894						
Jan.	0.95	1.42	1.59	1.41	2.05	1.10
Feb.	0.99	1.35	1.49	1.40	2.09	1.09
March.	0.99	1.24	1.35	1.33	2.15	1.09
April.	0.91	1.20	1.30	1.20	2.10	0.94
May.	0.90	1.22	1.31	1.20	2.05	1.05
June.	0.94	1.32	1.40	1.20	2.07	1.11
July.	0.95	1.35	1.40	1.20	2.05	1.14
Aug.	0.90	1.27	1.40	1.22	2.03	1.07
Sept.	0.90	1.30	1.35	1.24	2.00	0.99
Oct.	0.85	1.29	1.30	1.16	1.99	0.99
Nov.	0.86	1.24	1.30	1.15	1.90	0.92
Dec.	0.80	1.25	1.30	1.11	1.85	0.85
1895						
Jan.	0.81	1.25	1.30	1.10	1.86	0.86
Feb.	0.80	1.21	1.30	1.15	1.89	0.90
March.	0.76	1.20	1.30	1.15	1.89	0.94
April.	0.70	1.20	1.30	1.15	1.83	0.87
May.	0.81	1.24	1.31	1.15	1.81	0.97
June.	1.19	1.39	1.43	1.16	1.89	1.27
July.	1.43*	1.68	1.65	1.28	2.00	1.68*
Aug.	1.80	1.81	1.66	1.50	2.40	2.05
Sept.	1.96	1.95	1.82	1.46	2.70	2.25
Oct.	2.00	1.81	1.75	1.44	2.70	2.25
Nov.	2.00	1.68	1.76	1.40	2.56	2.25
Dec.	2.00*	1.50	1.69	1.33	2.03	2.25*
1896						
Jan.	2.00	1.43	1.60	1.23	1.90	2.25
Feb.	2.00	1.40	1.50	1.24	1.89	2.25
March.	2.15	1.40	1.55	1.23	1.85	2.40
April.	2.21	1.44	1.60	1.18	1.97	2.46
May.	2.30	1.45	1.68	1.20	2.00	2.55
June.	2.30	1.40	1.70	1.20	1.95	2.55
July.	2.30	1.38	1.76	1.20	1.87	2.55
Aug.	2.30	1.35	1.70	1.21	1.85	2.55
Sept.	2.30	1.31	1.70	1.20	1.80	2.55
Oct.	2.30	1.27	1.70	1.20	1.73	2.55
Nov.	2.09	1.25	1.70	1.20	1.76	2.29
Dec.	1.41	1.23	1.62	1.15	1.84	1.51
1897						
Jan.	1.28	1.20	1.70	1.15	1.76	1.39
Feb.	1.25	1.20	1.70	1.15	1.73	1.35
March.	1.25	1.20	1.70	1.14	1.70	1.40
April.	1.25	1.20	1.70	1.15	1.70	1.40
May.	1.23	1.11	1.49	1.10	1.68	1.35
June.	1.23	1.10	1.25	1.07	1.64	1.31
July.	1.20	1.10	1.15	1.08	1.60	1.25
Aug.	1.19	1.08	1.15	1.08	1.60	1.26
Sept.	1.19	1.14	1.15	1.14	1.70	1.41
Oct.	1.28	1.15	1.20	1.19	1.70	1.49
Nov.	1.14	1.14	1.20	1.20	1.69	1.41
Dec.	1.12	1.13	1.20	1.15	1.75	1.39
1898						
Jan.	1.10	1.10	1.30	1.11	1.71	1.42
Feb.	1.10	1.10	1.30	1.11	1.75	1.45
March.	1.10	1.08	1.30	1.06	1.77	1.43
April.	1.08	1.12	1.30	1.05	1.65	1.31
May.	1.08	1.21	1.30	1.05	1.66	1.31
June.	1.06	1.23	1.30	1.05	1.70	1.35
July.	1.06	1.20	1.30	1.00	1.70	1.31
Aug.	1.05	1.23	1.37	1.06	1.65	1.26
Sept.	1.08	1.27	1.40	1.14	1.67	1.32
Oct.	1.10	1.27	1.38	1.13	1.71	1.33
Nov.	1.10	1.25	1.35	1.10	1.71	1.28
Dec.	1.10	1.26	1.35	1.11	1.67	1.27
1899						
Jan.	1.18	1.35	1.40	1.15	1.88	1.43
Feb.	1.32	1.55	1.42	1.20	2.02	1.57
March.	1.48	1.89	1.55	1.41	2.42	1.94
April.	1.67	2.18	1.64	1.50	2.60	2.05
May.	1.65	2.23	1.63	1.56	2.70	2.10
June.	1.97	2.48	1.82	1.81	2.90	2.30

\* Change of base.

OF CRUDE AND FINISHED IRON AND STEEL  
t, 1902, TO JULY 1st, 1899.



## OBITUARY.

### JOSEPH S. PATTERSON.

Joseph Storm Patterson, an iron master, formerly of Philadelphia, died on July 19 at his residence in Port Kennedy, Pa., aged 53 years. He was a son of Morris Patterson, at one time owner of the Montgomery Iron Furnace. With his brother, Abraham Storm Patterson, who died last September, he was for many years interested in that company.

### J. C. MYERS

J. C. Myers, Lyons, N. Y., died on June 20 from the effects of burns received in the fire which destroyed his hardware store on June 3. Mr. Myers was in the act of drawing raw linseed oil when a lighted lantern nearby exploded, setting fire to his clothing and the establishment. Mr. Myers was also a director of the bank of Wayne, secretary and treasurer of the Lyons creamery and vice-president of the Lyons Milling Company.

### ALFRED DOWSLAND.

Alfred Dowsland, superintendent of the Syracuse Malleable Iron Works, Syracuse, N. Y., died July 6 from injuries received in a bicycle accident.

### ABRAHAM ACH.

Abraham Ach, senior member of the firm of Abraham Ach & Son, wholesale metal dealers of Dayton, Ohio, died on July 15.

### GEN. JOHN B. CLAPP.

Gen. John B. Clapp of John B. Clapp & Son, dealers in iron, steel, &c., Hartford, Conn., died at the home of his son in Hartford, July 15. Since 1868 he had been engaged in the iron trade in Hartford, until 1880 being a member of the firm of Blodgett & Clapp. In that year the Blodgett & Clapp corporation were organized, the partnership being dissolved. General Clapp was born in Wethersfield, Conn., July 4, 1842. In July, 1862, he joined the Union Army, participating in many important engagements. He was secretary of the Hartford Hardware Association and chairman of the credit bureau of the Western New England Steel and Iron Hardware Association.

### S. M. SHIMER.

S. M. Shimer, a well-known dealer in pig iron, iron ore and old material, died at his home in Cleveland, Sunday evening, July 23, at the age of 38 years. His death was entirely unexpected, he having been indisposed for only a few days, and the sickness not having been regarded as serious. Mr. Schimer had been engaged in his present line of business at Cleveland for over 14 years. He was also proprietor of the Pennsylvania Brass Works, at Erie, Pa.

### ROBERT L. MULFORD.

Robert L. Mulford, an old time hardwareman, died July 17, in his seventy-eighth year, at Mount Vernon, N. Y. Mr. Mulford was the senior member of the firm of Mulford & Sprague, who bought out Reed & Tracy at 85 Chambers street, New York. Mulford & Sprague, afterward Mulford & Underwood, as hardware jobbers did a Southern and nearby trade. The business was sold out to Quackenbush, Townsend & Co. in the later seventies.

## PERSONAL.

E. H. Gary, president of the Federal Steel Company, has sailed for Europe. He expects to visit some of the large plants in England and on the Continent, and will return in September.

John T. Llewellyn, president and general manager of the Belle City Malleable Iron Company, Racine, Wis., has resigned his connection with that company to take effect August 1. It is understood that he has made arrangements to start a malleable casting foundry at West Pullman, Ill., near the works of the Plano Mfg. Company. He is a brother of S. J. Llewellyn, secretary of the Republic Iron & Steel Company.

John McConnell has resigned his position as superintendent of the open hearth steel department of Jones & Laughlins, Limited, of Pittsburgh, to accept a similar position with the Lukens Iron & Steel Company, Coatesville, Pa.

Hermann Ortmann, chief engineer, and Max Hoffmann of the Roehling Eisen u. Stahl-Werke, at Voelkingen, a. d. Saar, are visiting this country.

George Clark, formerly superintendent of construction at the yard of the Newport News Shipbuilding

& Dry Dock Company, has accepted a similar position with the William Cramp & Sons Ship & Engine Building Company, Philadelphia.

W. Sangster has been appointed superintendent at the works of the Boston Blower Company, at Hyde Park, Mass.

Edward T. Clymer will leave the Antrim Iron Company to take charge of the furnaces of the Allentown Iron Company, at Allentown, Pa.

W. D. Crawford is to be general manager of the Tidewater Steel Company at Chester, Pa.

Cyrus Robinson, formerly with the E. P. Allis Company, has accepted the position of chief engineer of the Corliss engine department of the Westinghouse Machine Company, Pittsburgh, Pa.

J. C. Handenburg of Copenhagen, Denmark, has been in Pittsburgh for some time past, and has purchased a very large amount of machinery in that city.

V. A. Kashevnikoff, chief engineer of the mechanical department of the Chinese Eastern Railway, left for Europe on Wednesday in the "Majestic," after placing some large orders in this country for machinery and tools for the shops of the new railroad.

On Tuesday evening, July 24, Chas. De Wendel entertained some of the officials of the Carnegie Steel Company, Limited, at Pittsburgh, at dinner. Mr. De Wendel is connected with the De Wendel Steel Company, at Hayange, in German Lorraine. He has been in the United States for the past two years, investigating methods of making steel, and has been in Pittsburgh since December.

The departure from England of Henry C. Frick of the Carnegie Steel Company, Limited, which was originally set for August 16, may be delayed to the end of the month.

## Empire Steel & Iron Company Purchases.

In the line of their policy to render their several furnace properties, as far as practicable, independent of the market in the supply of raw materials, the Empire Steel & Iron Company have recently made several important moves.

In connection with an important Pittsburgh interest they have bought a tract of Connellsville coal land on the Southwest Branch of the Pennsylvania Railroad, on which 100 ovens will be built immediately. The Empire Coke Company have been organized under the laws of Pennsylvania, and the capital fully subscribed. The entire output of the new company has been contracted for a term of years to the Empire Steel & Iron Company, and will be shipped to its Pennsylvania furnaces. The oven plant can be increased as the occasion requires.

The Oxford Furnace property was bought (not leased, as incorrectly reported) for the magnetic ore mines, and it was not the purpose of the company to operate the furnace or mills. The latter, however, have been found to be in such good condition that it has been decided to put the furnace in blast and work its product into muck bar, and perhaps into finished forms. The rolling mill is extensive and well equipped, and the old hands show a desire to get back to the place which has been a center of iron making almost continuously for a century and a half.

The latest acquisition of the Empire Company are the Mount Hope Mining Company and Mount Hope Mineral Railroad, near Port Oram, N. J. The two properties have been purchased entire from the Lackawanna Iron & Steel Company, which formerly utilized the mines in making iron rails. There are three developed magnetic ore mines on the property, from which the Empire Company expect to ship 10,000 tons a month. The product will go to the Crane furnaces, at Catasauqua. Immediate possession is taken, and the work of pumping out the mines will proceed rapidly.

The Victoria Furnace of the Empire Company, at Goshen, Va., will blow in in a few days. It has been thoroughly repaired and improved under plans of Walter Kennedy of Pittsburgh, and is expected to be a large producer. It will draw its ore supply from the company's own mine in the Potts Valley district, on the C. & O. R. R. The Victoria Furnace was built in 1881 by English capital, E. Digby Boycott, an Irish land owner, whose name has gone into the dictionaries, being largely interested. The first cost of the property was \$1,500,000. With Victoria and Oxford started the Empire will have 10 of its 11 furnaces in blast.

**Information Wanted.**—Who manufactures steel, copper and brass molds for making loaf sugars?



## The Boiler Manufacturers' Meeting.

CLEVELAND, July 25, 1899.—The eleventh annual convention of the American Boiler Manufacturers' Association opened in this city Monday morning under most auspicious circumstances, and with a very large attendance. The attendance of regular members was larger than at any convention for four or five years—in fact, larger than any previous meeting since the initial one. The opening session, which was preceded by a short meeting of the Executive Committee, was called to order by President H. J. Hartley of Philadelphia, who delivered his annual address. Mr. Hartley reviewed the conditions in the business world during the past, and stated that something should be done for the benefit of the trade.

At the afternoon session reports were received from the Executive Committee, the secretary and the treasurer. The latter showed the finances of the organization to be in a very satisfactory condition. The secretary reported that 13 additions to membership had been made during the past year, while the association lost by death one of its most influential members, William McGregor, the fifth vice-president. Following the submission of the reports mentioned and the transaction of a few questions of routine business, the convention went into executive session for the discussion of matters bearing upon the welfare of the trade. Chief among these was the matter of agreeing upon some uniform scale of prices, but it is impossible to predict whether any definite results may be expected from the initiatory steps thus taken. The matter of members of the association advertising in the leading trade journals the fact that their boilers are manufactured under standard rules was also discussed informally.

The greater part of the session on Tuesday morning was taken up with the discussion of the topical question as to whether one sheet in the bottom of a boiler, 60 x 16 feet in size, is better than a sectional boiler. The discussion was very animated, and opinion seemed to be pretty evenly divided. During the afternoon an executive session was held to receive the report of the Committee on Nominations and consider some other matters.

The series of excursions and entertainments provided for the manufacturers in attendance and the half a hundred or more ladies who accompanied them were of a very elaborate order. The final session of the convention is scheduled for Thursday morning, and will be devoted principally to the election of new members, the selection of officers for the ensuing year and the selection of the next meeting place.

The Nominating Committee recommended the following: President, H. J. Hartley, Philadelphia, Pa.; first vice-president, D. Connelly, Cleveland, Ohio; second vice-president, John O'Brien, St. Louis, Mo.; third vice-president, J. Dunsmith, Charleston, S. C.; fourth vice-president, James Morrison, Pittsburgh; fifth vice-president, M. N. Weldners, Chattanooga, Tenn.; secretary, J. D. Faraser, Cleveland; treasurer, Richard Hammond, Buffalo. The next convention will probably go to some Southern city.

The gentlemen in attendance were T. R. Teare, M. Thomas, B. G. Hearn, George Rowe, J. F. Corlett, John H. Early, James McGrath, Dr. F. A. McAuley, John Newey, E. J. Leighton, J. R. Mills, E. C. Collins, Charles Callisi, Ishmael Jones, A. B. Hambleton, J. H. Webster, M. W. Facon, Ed. S. Page, James Stone, George Bartol, H. F. Deverell, H. Jeavous, W. J. Walker, A. J. Findley, Dan Connelly, Will Gonnely, Lawrence Connelly, W. C. Stirling, J. D. Farasey, J. H. Kennedy, F. Groeh, C. C. Harris, Capt. John Shay, D. J. Champion, A. Carlin, H. C. Quigley, Will McCarthy, F. H. Hark, J. D. Clary, Daniel A. Byerley, Frank Byerley, A. A. Fonda, E. T. Hannam, Capt. George L. DeWolf, John M. Mulrooney, John Murphy, Fred. Dietz, Fred. Cook, George Hirsch, W. H. Teare, John Weber, E. S. Mills, Robert Wallace, Ira B. Bassett, all of Cleveland; H. J. Hartley, S. Crawford, Fred'k R. Case of Philadelphia; R. Lombard, Augusta, Ga.; D. Grupe, Davenport, Iowa; John O'Brien, James T. Wangler, St. Louis; Louis D. Collins, Geneva, N. Y.; James Lappan, C. W. Laughlin, James Morrison, Pittsburgh; George W. Liting, J. D. Harley, E. J. Walsh, A. M. Castle, W. O. Duntley, H. A. Freeman, Chicago; J. Don Smith, Charleston, S. C.; Charles Hooper, Erie, Pa.; W. Weidner, Chattanooga, Tenn.; Columbus Dill, Boston; W. J. McAleeman, Peoria, Ill.; T. E. Tucker, Dayton, Ohio; J. B. Campbell, Akron, Ohio; J. F. Molloy, Boston; James A. Dumont, Washington, D. C.; Robert Joy, Oswego, N. Y.; E. P. Robinson, Boston; Charles Freeman, Racine, Wis.; H. F. Cook and H. H. Prange, Akron, Ohio; Richard Hammond, Buffalo; George N. Riley, Pittsburgh; J. R. Brownell, J. R. Brownell, Jr., Dayton, Ohio; C. W. Leonard, London, Ontario, and Cliff M. Tudor, Cincinnati.

## Business in Manchuria and Eastern Siberia.

M. Sergey Friede, president of the M. S. Friede Company, 320 Broadway, returned to this city yesterday from an extended business trip into Manchuria and Eastern Siberia, bringing back with him large orders for railway tools and machinery that will keep many factories busy for some time to come. Mr. Friede has returned to America some months sooner than he expected to do, on account of the remarkable prosperity in the States, as evinced by rising prices, especially in metal materials, and also to personally see to the prompt delivery and shipment of contracts he has to give out for shipment to Asia.

Speaking of the orders Mr. Friede said: "Every one of them that I possibly can I will place right here in the States, but there are two things that American manufacturers should realize: first, that while they make the best tools and machinery in the world, that fact will not excuse unprompt and tardy deliveries. The engineers of the Chinese Eastern Railway are constructing that road with marvelous speed, and the materials are needed promptly, for navigation closes at Vladivostok in November, and then material has to be taken overland by caravans of eight-horse wagons to Habin, the central point of construction in Manchuria, and redistributed to the various divisional stations. This entails enormous extra work, delay and expense, and when an American firm fails in promptness the feeling of the engineers is naturally one of anger.

"Secondly, American manufacturers must remember that Germany, Belgium and England are endeavoring to oust America out of the position she has taken in supplying the enormous part of the material for the building of the Chinese Eastern Railway, and that they, regardless of present orders, are willing to cut their prices for the present to secure the business of the future. America must do the same, and while prices are generally rising our manufacturers should not jeopardize all our future business in Northern Asia by holding their prices at so stiff a figure that Russia cannot afford to overlook the European quotations. The time will come again when American mills and factories will run on half time, and it will be a good thing then to control the enormous field into which Russia is pouring her millions for improvements.

"No one here can form any conception of the number of coolies at work along every mile of the projected road, and some months ago, when American rock drills were first introduced, the coolies' struck, but now that the strike is over they watch the drills doing their marvelous work, and are as delighted as so many children.

"At Habin, too, wonderful changes are taking place. Eight months ago it was a barren waste, to-day it is a city of magnificent residences and office buildings, well paved streets with electric lights at every corner, and this summer an American ice plant entered the city and has probably been put in operation by now. In Central Manchuria a Russian company is erecting an American flour mill, and yet three years ago when I first went into this country they laughed at the idea that America could supply any machinery or manufactured articles. To-day we practically control the market in that country.

"In Port Arthur, the eastern terminus of the road, nearly every piece of machinery has the stamp of some American firm upon it; everything, locomotives, rails, cross ties, cars, and even track tools, is of American manufacture, and the first sight that met my eyes was a Cossack sitting guard over a yard full of material my company had shipped; he had been there for months, and is there yet."

Mr. Friede has his representatives in Manchuria, but there is no doubt that his remarkable success in opening up Eastern Siberia and Manchuria to American trade is due to the fact that he has learned the language so thoroughly that he speaks Russian as well as English, and being an engineer himself, finds the technical terms necessary in conversing with the engineers at the tip of his tongue in both languages. Experience has taught many of our manufacturers that any one sent to Siberia for business who does not speak the language is worse than useless, and that after all a sort of clearing house in the shape of some one who understands the language and the needs of the people is absolutely essential to business in that country.

A bill in equity has been filed at Trenton, N. J., in the United States Court of Equity by Coudert Brothers, New York, representing complainants in a suit brought against the Driggs-Seabury Gun & Ammunition Company by A. Tropenas, the inventor of the Tropenas process. In December, 1897, he granted the Driggs-Seabury Company a license to manufacture under his invention in the United States, but alleges in his complaint non-performance of contract and non-payment of royalties on the part of the Driggs Company, and seeks to cancel the contract and recover damages.

## MANUFACTURING.

### Iron and Steel.

Carp Furnace, at Marquette, Mich., which has been idle for a long time, will be blown in about September 1 by Charles H. Schaffer and Noah W. Gray. Mr. Gray was formerly connected with Hinkle Furnace, at Ashland, Wis. Carp Furnace has an annual capacity of about 11,000 gross tons of charcoal pig iron.

The Amalgamated Association scale has been signed by the Republic Iron Works of the National Tube Company, on the South Side, Pittsburgh. The plant has been operated non-union heretofore.

The tonnage men employed by the National Rolling Mills, at McKeesport, Pa., have received an advance in wages of 15 per cent.

It is stated that William J. Carlin of Pittsburgh, who recently purchased the long idle Premier Steel Works at Indianapolis, Ind., for the purpose of wrecking the plant and selling the machinery, has changed his mind and will within 30 days put the works in operation. The great demand for steel and the high prices now prevailing are strong inducements to start up establishments of this character if they do not require too much overhauling. The Premier plant comprises two 4-ton Bessemer converters, two 15-ton open hearth steel furnaces, a blooming mill, 26 and 18 inch bar mills, and a 26-inch beam mill, capable of rolling beams and other shapes up to 20 inches.

It is not probable that the two blast furnaces under erection at the Ohio Works of the National Steel Company, Youngstown, Ohio, will be completed within six weeks, or possibly longer. The contractors who are building the furnaces are so crowded with work that progress has been slower than expected.

A third blast furnace of about 600 tons daily capacity is to be added to the Ohio Works of the National Steel Company, at Youngstown, Ohio.

Henry B. and Jas. D. Shields of the Coleman-Shields Company, Niles, Ohio, have bought the interest of J. Morgan Coleman in that concern. They have also, as will be recalled, recently bought the Wheatland Rolling Mill, at Wheatlands, Pa., and have just started it up in the manufacture of skelp iron. This plant, and the works of the Coleman-Shields Company at Niles, will both be operated in the future under the name of the Continental Iron Company.

The American Tin Plate Company are now dismantling the black plate mills at Baltimore formerly operated by the Stickney Iron Company; the mills at Locust Point, Maryland, formerly operated by the Baltimore Tin Plate Company; the mills at Brooklyn, N. Y., formerly operated by Somers Brothers, and the mills at Cleveland, Ohio, formerly operated by the Britton Rolling Mill Company. All of the works named had tin dipping plants connected with them. The company also advise us that they have secured control of the tin dipping plant at Canal Dover, Ohio, formerly operated by the American Tin Plate Machine & Mfg. Company, and will operate it in connection with their black plate mill at Canal Dover.

Wm. McIntyre & Sons, general contractors for stone and brick work, Sharon, Pa., have a contract for relining Punxsutawney furnace, of the Punxsutawney Iron Company, at Punxsutawney, Pa. The furnace is still in blast, and will not be blown out until necessary to do so. The concern have placed the order for relining and other repairs, so that when the stack goes out all possible haste can be made in the work.

One hundred and twenty-five employees of the Andrews Works and the Mahoning Works of the Republic Iron & Steel Company, at Youngstown, Ohio, went on a strike on Monday, July 24, claiming they were entitled to the same advance in wages as granted to the employees belonging to the Amalgamated Association. The matter will likely be arranged in a few days.

Common labor at the Laughlin plant of the American Tin Plate Company, at Martin's Ferry, Ohio, was advanced 5 per cent. last week.

Edward E. Erikson, contracting engineer, Conestoga Building, Pittsburgh, has received a contract for two more open hearth furnaces, of 20 tons capacity each, one basic and one acid, to be built for the Pittsburgh Steel Foundry, whose new plant is located at Glassport, Pa. This makes a total of five open hearth furnaces which Mr. Erikson has built for this concern.

It is probable that the two mill black plate plant of the American Tin Plate Company, at West Newton, Pa., formerly operated by John Hamilton, will be removed to the Connellsville Works, at South Connellsville, Pa. An addition has been built to the South Connellsville Works for the reception of the new mills, which will make the South Connellsville plant an 8-mill one.

For some time the Carnegie Steel Company, Limited, have had under consideration the advisability of building two more blast furnaces at Duquesne. It has been decided not to build these for the present at least. This concern now have 17 furnaces. Nine are at Bessemer, four at Duquesne, the two Corrie furnaces and the two Lucy furnaces at Pittsburgh, all of which are blowing.

The entire product of pig iron made by Fannie Furnace, at

West Middlesex, Pa., has been bought for one year by the American Steel Hoop Company. The furnace was blown in on May 27 by the American Steel Hoop Company after an idleness of several years. It is owned by the Reed Furnace Company, and has an annual capacity of 36,000 gross tons.

The Garland Chain Company, Rankin, Pa., manufacturers of chain, have granted their employees an advance in wages averaging about 15 per cent., which is the third advance made by this concern since the first of the year. The heavy demand for chain, together with the high prices ruling, will probably bring about a general advance in wages of chain makers.

James McKay & Co., chain manufacturers, in Pittsburgh, have granted their employees an advance in wages of about 15 per cent. This firm are full of work, and are operating their plant at Twenty-eighth street and Liberty avenue, Pittsburgh, to its utmost capacity in all departments.

The American Steel & Wire Company have recently installed a 1500 horse-power engine in their rod mill at Beaver Falls, Pa. It is expected that this plant, which has been idle for some time, will be started up before long.

Durham Furnace, at Riegelsville, Pa., is to blow in this week. It belongs to Cooper, Hewitt & Co.

After being in blast about a year the Penn Iron & Coal Company of Canal Dover, Ohio, on June 29 blew out its Dover Furnace for repairs. After a quick job of brickwork the furnace was lighted again last week, having been out only 19 days. This company are adding this fall an additional hot blast stove, 19 x 75 feet, of the Foote type, and a Southwark blowing engine, 42 x 84 x 60 inches. Their new Davies casting machine is expected to be operating in about two weeks.

### Machinery.

The Sterritt-Thomas Foundry Company of Pittsburgh have made application for a charter of incorporation. The incorporators are Wm. B. Sterritt, David J. Thomas, Henry P. Skilper, Chas. Baur and Edward A. Spencer. The new concern will take over the business of Sterritt & Thomas, founders and machinists, of Thirty-second and Smallman streets, Pittsburgh.

The Thew Automatic Shoveling Company were formally organized a few days ago, with authorized capital of \$200,000, paid up capital of \$150,000. The directors of the company are as follows: W. A. Donaldson, E. M. Pierce and F. A. Smythe of Lorain; R. Thew and H. H. Johnson of Cleveland. The officials of the company are F. A. Smythe, president; R. Thew, vice-president; W. A. Donaldson, secretary and treasurer. Contracts have been let and work will be commenced at once upon the new plant of the company, to be erected at Lorain, Ohio.

The United States Motor Company of Pittsburgh have been granted a charter of incorporation under the laws of Delaware, with \$1,000,000 capital stock. The company propose to manufacture automobiles and other electric vehicles.

The G. A. Gray Company, Cincinnati, Ohio, makers of the well-known Gray planer, have just made a large shipment of nine heavy cases of tools to Schuchardt & Schutte, Brussels. The company have been increasing their output and selling more machinery for foreign countries than ever before. This has only been made possible by the erection of the present modern plant now occupied by them.

The Waukesha Malleable Iron Company, Waukesha, Wis., are continuing to make improvements in their plant. They have just completed an addition to their foundry and are now arranging for a still larger extension, which will cover a space 70 x 250 feet.

John Mohr & Sons, Chicago, have received an order from the city of Chicago for six internally fired boilers to be placed in the Chicago avenue pumping station of the city water works system. Joseph T. Ryerson & Son will furnish the furnaces for these boilers, which are to be of the Morison type. The boilers will generate 1500 to 2000 horse-power.

The Hamler Boiler & Tank Works have located a new plant at Thirty-ninth and Halsted streets, Chicago, on the line of the Chicago Junction Railway. They will have a modern equipment for the manufacture of riveted plate work. The principal owner is Peter J. Hamler, formerly superintendent of the Tobin-Hamler Mfg. Company.

The Niles Tool Works Company, Hamilton, Ohio, manufacturers of machine tools, have received a large order for machine tools for the temporary machine shops now being built at Harbin, Manchuria, on the Chinese Eastern Railway. The order includes a large car lathe, weighing about 42,000 pounds, double axle lathes of various sizes, large vertical boring mills, double steam hammers and hand and portable twist drills. This is the second order the Niles Tool Works Company have received from this concern, the first order which they filled being entirely satisfactory and leading to the placing of the second. The Niles Tool Works Company have a contract for furnishing a full complement of tools for the plant of the Alabama Steel & Ship Building Company at Ensley, Ala.

The ground and buildings formerly owned by the Robinson-Rea Mfg. Company, on the South Side, Pittsburgh, have been sold to the Pittsburgh & Lake Erie Railroad, which will use the ground for freight purposes. The equipment will be shipped to the new plant of the Mesta Machine Company, at Homestead,



which concern now owns the Robinson-Rea Mfg. Company, the buildings of which are now practically completed.

The Cameron-Tennant Machine Works of Richmond, Va. were organized on April 21, 1899, with a maximum capital of \$25,000 and \$7500 paid up. Alexander Cameron, Jr., of Cameron & Cameron, was elected president; William Cameron, Jr., of the same firm, secretary, and Barton H. Cameron, M. E., treasurer and general manager. The Board of Directors consists of Alexander Cameron, of Alexander Cameron & Co.; Alexander Cameron, Jr., H. F. W. Southern, H. L. Ainslie and William Cameron, Jr. The company's charter allows them to do a general machine construction and repair business, and they are well equipped with modern machine tools, smith shop and foundry. The company own the entire interest of the patent and manufacture the well-known Leitch variable stroke power pump, which has been put on the market by Smith-Courtney Company of Richmond, Va.

W. H. Crossman & Bro., commission and export agents of New York City, have just placed an order with the York Mfg. Company, York, Pa., for a complete 2-ton ice making plant, which will be shipped to Brazil.

The Reading Abattoir & Hide Company, Reading, Pa., have also placed an order with the same company for a complete 25-ton refrigerating plant.

The Boston Blower Company of Hyde Park, Mass., report a large increase of business. The works are now running in full under the management of J. F. Polsey. They have recently shipped 16 large blowers to the New Jersey Zinc Company, Hazard, Pa., and a large heating apparatus to the Standard Fire Proofing Company, Perth Amboy, N. J. Among the larger orders recently received is a heating outfit for the S. A. Smith Company of Brattleboro, Vt., and a complete heating and ventilating plant for the Standard Silk Company of Phillipsburg, N. J.

The Wellvar Mfg. Company, Phillipsburg, Pa., report having been doing a large business in their wood working machinery department since the beginning of the year, the shop being now very much crowded filling orders. They have recently begun the manufacture of gas and gasoline engines, and from present demand the outlook for the future is very flattering. Within a short time several new machine tools will be added to the factory, and in the coming year it is contemplated erecting a wing to their building.

The Phillips Mine Supply Company, whose plant is located on the South Side, Pittsburgh, will make application for a charter for a new concern, to be known as the Phillips Mine & Mill Supply Company. New buildings will be erected and the capacity of the present concern about doubled. The Phillips Mine Supply Company was organized in 1890, with John Phillips as president and John M. Phillips secretary and manager.

The Morgan Engineering Company of Alliance, Ohio, have just received two large contracts for electric traveling cranes, one to go to Russia and the other to Denmark. The plant of this concern is being operated to its full capacity, giving employment to a very large force of men.

The Geo. B. Sennett Company of Youngstown, Ohio, have been given a contract for supplying the castings for nine Kennedy hot blast stoves for the Isabella Furnace of the American Steel Hoop Company, at Etna, Pa.

The Monongahela Light & Power Company have commenced erection of a new power house at Rankin, near Pittsburgh. It will be one of the largest, and it is stated will cost very close to \$1,500,000. The building will be 200 x 350 feet. It will be equipped with machinery of the Westinghouse type, and when completed and in operation will furnish power and light for the Monongahela Street Railway, the city of McKeesport and the boroughs of Homestead, Braddock, Wilkinsburg, Swissvale, Rankin, North Braddock, Duquesne, Turtle Creek, Wilmerding and East Pittsburgh. The Monongahela Company lately acquired control of the different plants at these towns, and when the new plant at Rankin is completed will extend its lines and dismantle the smaller plants, selling the machinery.

Reade & Bowler, Cleveland, Ohio, have purchased the entire equipment of machinery and tools of the following plants: Chapin Bolt & Nut Company, Cleveland, Ohio, which consists of about 50 bolt and nut machines; the Maumee Cycle Company, Toledo, Ohio, and the Findlay Rolling Mill Company, Findlay, Ohio. They have sold the entire outfit of the Findlay mill to a party who will probably operate it.

The new Hiett Machine Company have been formed and are now located at 1110-1112 North Broadway, St. Louis, where they will manufacture and market the Hiett's St. Earl listing and adding machine. The Hiett's radii limit weighing scales will also be manufactured by this company.

The A. B. Pitkin Machinery Company, Providence, R. I., announce their acquisition of the records, drawings, patterns and parts, unfinished and finished, of the Armington & Sims engines, and are completing arrangements that will enable them to give orders for any parts of these engines prompt and careful attention. When desired they will also furnish an expert to examine and take the whole charge of repairing engines.

The Foundry & Machine Company, Duluth, Minn., have been incorporated with \$50,000 capital by A. S. Chase, P. W. Herzog and Wm. O'Donnell.

#### Hardware.

The Ironsides Company, Columbus, Ohio, report great activity in their specialties both in the domestic and foreign trade. Among the products of this company are special lubricants for wire ropes and gearing that form protective deposits on the wearing surfaces. From the testimonials received from a wide range of users in general mining and industrial operations, the company's products evidently give excellent satisfaction.

Davis & Buxton Stamping Company, Worcester, Mass., are at present in process of incorporation under the laws of Massachusetts for the purpose of manufacturing sheet metal stampings of every description, including bicycle fittings, ceiling plates, stove trimmings, ferrules, &c., and cold steel drawing and forming. George S. Davis, who for years has been manager of the Worcester branch of John P. Lovell Arms Company, is to look after the financial and sales departments, and Willard H. Buxton, who has been continuously engaged in this particular line of work for the past 13 years, is to have charge of the factory. The new concern are already located at Exchange and Cypress streets and much of their machinery has been installed, so that they are now ready for business. The equipment of their plant will be new and thoroughly up to date, and they are already receiving orders.

Heller Brothers Company, Newark, N. J., advise us that the outlook for trade this fall in the United States as well as for export is very encouraging. They report orders for the past month as larger than for the same period in any previous year, and to cope with this increase in business they are building an addition to their tool and steel works, which they hope to have in working order by October 1.

Hay-Budden Mfg. Company, Brooklyn, N. Y., have just shipped to the Chinese Eastern Railway, Vladivostok, 40 300-pound anvils. This makes a total shipment of 70 anvils, the previous 30 having been shipped November 18 last. The company refer to the fact that they are favored with this second large order as testifying to the superior quality of their solid wrought anvils. They advise us that they are shipping these goods abroad in competition with the oldest and best known foreign brands.

Bommer Brothers, manufacturers of the well-known Bommer spring hinges, have removed to and are now fully installed in their new plant, 257 to 271 Classon avenue, Brooklyn, N. Y. The main building has light on all sides, is 60 x 120 feet in size and four stories high, on a plot 200 x 100 feet, engine and boiler rooms, storage for coal, &c., being located outside and separate. The factory is in every respect modern in design and of slow burning mill construction, every precaution of tried value, such as automatic sprinklers, &c., being taken to minimize fire risk. Special pains were taken to secure good light and ventilation and sanitary surroundings for the employees. The power plant, consisting of a battery of Bigelow high pressure boilers, arranged for either forced or natural draft, and a Watts-Campbell 100 horse-power Corliss engine, is working perfectly. The building contains fire proof vaults for storage of dies and special tools. Bommer Brothers hope with their now largely increased facilities to be better able than ever to serve their customers.

The business of A. & T. McKenna, manufacturers of fine brass work, electroplating, brass railing, &c., for many years located at 218-220-222 Third avenue, Pittsburgh, Pa., has increased so rapidly of late that the firm have been compelled to seek enlarged quarters. With this purpose in view they have bought a site 160 x 84 feet, bounded by Ross and Water streets and First avenue, Pittsburgh, on which will be erected a six-story building, practically fire proof. This firm are operating their present works night and day, and have sufficient orders booked to keep them busy for a long time to come. They expect to begin work on their new factory at once, and will push it to completion as fast as possible.

#### Miscellaneous.

W. J. Rainey, the Connellsville coke operator, is building 100 new ovens in the Connellsville region.

The Shimer Woven Wire Fence Company, Anderson, Ind., are arranging to double the capacity of their plant this fall. Among the machines to be added will be one for making a double fence. They also contemplate equipping the factory to make lawn fence. The company are operating independently and reports are incorrect that they have sold out to other manufacturers.

The Empire Coke Company of Pittsburgh have made application for a charter of incorporation. The concern have recently bought a large acreage of coal lands in the Connellsville region, and expect to soon commence operations on the building of a large number of ovens.

At Pittsburgh, John McCleave has filed a bill in equity against Jones & Laughlins, Limited, asking for an injunction restraining the defendant company from operating coke ovens in the Twenty-third Ward, Pittsburgh.

It is stated that work on a new bridge and structural plant, to be located at Edinburg, Lawrence County, Pa., will be commenced in a short time. Among those identified with the new interest are John C. Ort, formerly with the Pittsburgh Bridge Company; George Knoff and Chas. M. Neeld. Application for a charter of incorporation is to be made, and work on the building of the plant is to be pushed through as rapidly as possible.



## The Iron and Metal Trades.

The uneasiness and scarcity of labor is one of the most serious phases of the present situation. The slightest pretext is apparently seized upon for an opportunity to strike. Such disturbances have their immediate effect in throwing the whole line of industries out of gear, so closely dependent upon work to full capacity is each link in the chain.

The Lake Ore situation seems to cause most uneasiness in this direction, and it looks as though estimates of the probable tonnage to be brought to market before the close of navigation will have to undergo revision. That this has been anticipated by some of the large interests is indicated by the reports that arrangements have been made to haul large quantities of Lake Superior Ore to the furnaces, by rail, during the whole winter.

It is somewhat difficult to judge of the demand. A good many of the urgent requirements which come up are really to cover material purchased from, but not delivered by, other makers. The majority of consumers of raw material seem to be buying from hand to mouth, and show little disposition to place long time contracts, unless prices are guaranteed, which is sometimes done.

On the other hand, testimony from the leading Western distributing markets for Foundry Pig Iron all agrees on the point that large sales for delivery far into next year are being made at present full prices. This is certainly not true of the country east of the Alleghany Mountains.

The development of the Pig Iron production has been, as was predicted, very much slower than the sanguine were willing to admit. But while that was true during the first half of 1899, it will certainly not be during the second half. Furnaces to make Foundry Iron are blowing in right and left, and there will be a notable increase in this direction. The majority of them, it is true, are sold ahead, but any disturbance of consumption would be quickly felt.

The shortage of Pig Iron is most serious in Bessemer Pig, and it is reported that one large interest has been drawing steadily on its emergency stocks and may be soon forced to supplement its own supply by purchases in the open market.

There is very little doing in Steel, although very stiff prices are paid for small lots for early guaranteed delivery. A second Eastern Steel plant has taken a large order for Steel Wire Billets for delivery during the current year.

In the West and East the demand for Bars, Shapes, Bands, Hoops, &c., continues heavy. Car builders have placed some good orders and season contracts from the agricultural implement makers are coming in. The Structural mills are under heavy pressure and the Plate mills continue swamped.

The Wire industry is reported to be quiet, so far as new business is concerned. This is usually the off season.

The European markets seem on the crest of an extraordinary rise as our own. In England buyers seem now to be holding off. From the Continent a continuous stream of inquiries is still coming, but little is being actually put through.

Tin has had an extraordinary rise, jumping in London from £133 a week since to £143 15s. for spot to-day. Here the market has advanced from 29c. last week to close to 32c. to-day.

## A Comparison of Prices

At date, one week, one month and one year previous.

### Advances Over the Previous Month in Heavy Type. Declines in Italics.

	July 26, 1899.	July 19, 1899.	June 28, 1899.	July 27, 1898.
<b>PIG IRON :</b>				
Foundry Pig, No. 2, Standard, Philadelphia.....	\$20.00	\$19.75	\$18.50	\$10.00
Foundry Pig, No. 2, Southern, Cincinnati.....	.....	17.50	17.00	9.25
Foundry Pig, No. 2, Local, Chicago.....	19.50	19.00	19.00	11.00
Bessemer Pig, Pittsburgh.....	20.75	20.75	19.75	10.25
Gray Forge, Pittsburgh.....	17.50	17.50	17.75	9.00
Lake Superior Charcoal, Chicago.....	21.50	21.50	21.00	11.50
<b>BILLETS, RAILS, ETC.:</b>				
Steel Billets, Pittsburgh.....	34.00	33.00	31.50	14.50
Steel Billets, Philadelphia.....	36.00	35.50	34.00	16.50
Steel Billets, Chicago.....	.....	.....	.....	15.75
Wire Rods, Pittsburgh.....	.....	.....	.....	20.00
Steel Rails, Heavy, Eastern Mill.....	29.00	28.00	28.00	17.50
Spikes, Tidewater.....	2.00	2.00	1.85	1.40
Splice Bars, Tidewater.....	1.90	1.90	1.75	1.05
<b>OLD MATERIAL :</b>				
O. Steel Rails, Chicago.....	15.00	15.00	14.50	8.25
O. Steel Rails, Philadelphia.....	17.00	16.50	15.50	9.75
O. Iron Rails, Chicago.....	19.00	18.50	18.00	12.50
O. Iron Rails, Philadelphia.....	20.50	20.00	19.50	12.00
O. Car Wheels, Chicago.....	15.50	15.50	16.00	11.50
O. Car Wheels, Philadelphia.....	16.50	16.50	16.00	10.00
Heavy Steel Scrap, Chicago.....	13.00	13.00	14.00	8.00
<b>FINISHED IRON AND STEEL :</b>				
Refined Iron Bars, Philadelphia.....	2.00	2.00	2.00	1.00
Common Iron Bars, Youngstown.....	1.85	1.85	1.80	0.92½
Steel Bars, Tidewater.....	2.20	2.10	2.05	1.05
Steel Bars, Pittsburgh.....	2.05	2.05	2.00	0.90
Tank Plates, Tidewater.....	2.65	2.60	2.50	1.20
Tank Plates, Pittsburgh.....	2.50	2.50	2.35	1.07½
Beams, Tidewater.....	2.15	2.15	1.90	1.30
Beams, Pittsburgh.....	2.00	2.00	1.75	1.15
Angles, Tidewater.....	2.15	2.15	1.85	1.20
Angles, Pittsburgh.....	2.00	2.00	1.75	1.05
Skelp, Grooved Iron, Pittsburgh.....	2.35	2.35	2.15	1.05
Skelp, Sheared Iron, Pittsburgh.....	2.50	2.50	2.25	1.10
Sheets, No. 27, Chicago.....	3.25	3.15	3.05	2.00
Sheets, No. 27, Pittsburgh.....	3.00	3.00	2.85	1.85
Barb Wire, f.o.b. Pittsburgh.....	3.10	3.10	2.95	1.65
Wire Nails, f.o.b. Pittsburgh.....	2.50	2.50	2.35	1.25
Cut Nails, Mill.....	2.20	2.20	2.05	1.05
<b>METALS :</b>				
Copper, New York.....	18.50	18.50	18.00	11.50
Spelter, St. Louis.....	5.65	5.90	5.50	4.30
Lead, New York.....	4.55	4.60	4.45	3.92½
Lead, St. Louis.....	4.60	4.57½	4.35	3.80
Tin, New York.....	31.75	28.90	26.15	15.55
Antimony, Hallett, New York.....	9.75	10.00	10.00	9.00
Nickel, New York.....	36.00	33.00	33.00	34.00
Tin Plate, Domestic, Bessemer, 100 lbs., New York.....	4.55	4.55	4.05	2.80

### Chicago. (By Telegraph.)

Office of The Iron Age, 905 Fisher Building.  
CHICAGO, July 26, 1899.

Much confidence is shown in the future, contracts being made at top prices for deliveries running far into next year. Merchants show no hesitation in replenishing their stocks when they find them running short. The demand is so good, consumption is so heavy and the agricultural outlook is so bright that it is felt that at present little risk is being taken in paying ruling prices.

**Pig Iron.**—The course of the Pig Iron trade for next year seems to have been marked by sales recently made for future delivery. The highest prices yet reached have been realized on contracts which are to run through the second and third quarters of 1900. The engine and machinery builders are conspicuously buying large quantities, while consumers in the country towns are becoming more numerous among buyers. The sales of the week comprise a number of good round lots, almost entirely confined to Southern Iron. The local furnaces are sold as far ahead as they care to dispose of their product. Further inquiries are coming up and prospects continue encouraging for immediate trade. Consumers are in many cases dividing their orders among two or more companies, so as to be reasonably certain of getting deliveries when Iron is wanted. Hardly a furnace company are now making deliveries on exact time. The majority are far in arrears, which causes a constant demand for immediate delivery from those who find themselves short of Iron. They are paying in such cases almost any reasonable advance over the ordinary quotations. Sales have been made in this way up to \$23 for ordinary No. 2 Foundry. Prices are about 50c. higher than last week. We quote for cash as follows:

Lake Superior Charcoal.....	\$21.50 to \$23.00
Local Coke Foundry, No. 1.....	20.00 to 20.50
Local Coke Foundry, No. 2.....	19.50 to 20.00
Local Coke Foundry, No. 3.....	19.00 to 19.50
Local Scotch, No. 1.....	20.50 to 21.00
Ohio Strong Softeners, No. 1.....	20.80 to 21.50
Southern Silvery, according to Silcon.....	21.75 to 22.00
Southern Coke, No. 1.....	20.15 to 20.65
Southern Coke, No. 2.....	19.15 to 19.65
Southern Coke, No. 3.....	18.65 to 18.90
Southern Coke, No. 1 Soft.....	20.15 to 20.65
Southern Coke, No. 2 Soft.....	19.15 to 19.65
Foundry Forge.....	17.65 to 17.90

Gray Forge and Mottled.....	17.65 to 17.90
Southern Charcoal Softeners.....	20.00 to 22.00
Alabama and Georgia Car Wheel.....	20.75 to 22.00
Malleable Bessemer.....	21.00 to 22.00
Standard Bessemer.....	21.00 to 22.00
Jackson County and Kentucky Silvery, according to Silicon.....	25.00 to 27.00

**Bars.**—The week has been characterized by a strong demand for Bar Iron, which has not abated. The demand is of a general character, the daily aggregate of sales making a heavy tonnage, although no large single contracts have been placed. Desirable orders are being turned down from inability to make early deliveries. Mill shipments of Common Iron are quoted at 1.85c. to 1.95c., Chicago, and it is remarked that half extras are now being paid even by the best trade and 5c. extra for cutting to length. Soft Steel Bars have also been sold quite freely, with prices on mill shipment ranging from 2.05c. to 2.20c., Chicago. Hoops are unchanged at 2.40c., base, for Bands. Jobbers report the volume of business fully equal to that of previous weeks. They are unable to keep up assortments, even when receiving prompt mill shipments. The demand is running ahead of the usual sources of supply. Quotations on small lots from stock are 2.15c. upward for Bar Iron, 2.20c. upward for Soft Steel Bars, 3.40c. for large lots of Norway and Swedish Iron, and 3.50c. for small lots.

**Car Material.**—An order for 2500 cars has been placed by a Western railroad company, which has caused the purchase of good quantities of material. Considerable difficulty was experienced in placing the order for axles, as manufacturers have their capacity so completely employed.

**Structural Material.**—The work has been quiet, with a light demand for even small lots. Prices are unchanged. Mill shipments are quoted as follows, Chicago delivery: Beams, Channels and Zees, 15 inches and under, and Angles 3 to 6 inches, 2.15c.; Beams, &c., 18 inches and over, and Angles over 6 and under 3 inches, 2.25c.; Tees, 2.20c.; Universal Plates, 2.65c. Store prices take the usual advance above prices for mill shipment.

**Plates.**—A sale of 1500 tons of Tank Plate has been made at 2.50c., Chicago, for delivery at the convenience of the mill. Prices on Tank are a little easier in consequence of the starting of additional mills at Pittsburgh. Mill shipments can therefore be had at reasonably prompt delivery at 2.70c. to 2.80c., Chicago. Mill shipments of Flange are quoted at 3c. to 3.10c., Marine at 3.15c. to 3.25c., and Fire Box at 3.50c. to 5.50c. Jobbers report a very satisfactory demand and shipments as previously reported to distant sections of the country. They will advance prices this week to 3¼c. from stock for Tank Steel and 3½c. for Flange.

**Merchant Pipe.**—Mills are three to four months behind on shipments and continue to quote 50 and two 10's. Warehouse stocks are badly broken. When one size is filled in another size runs short. No prices are being made on mill shipments of Boiler Tubes. The demand has been phenomenal for warehouse shipments. Merchant Steel Boiler Tubes are now quoted in small lots, 1¼ to 1½ inches, inclusive, 40 per cent. off; 2 to 2½ inches, inclusive, 50 per cent. off; 3 inches and larger, 55 per cent. off.

**Cast Pipe.**—Business is quite active, with no specially large orders, but with small orders so numerous that the aggregate is very satisfactory. The burning of the Addyston Pipe Works has not seriously troubled the United States Cast Iron Pipe & Foundry Company. The orders expected to be filled there had to be transferred, which was done at little inconvenience, and the foundry will again be running inside of 30 days.

**Sheets.**—The demand for both Black and Galvanized Sheets has only been fair during the week. The position of the mills, however, is getting stronger, partly due to advancing cost of raw material and partly to better business from other sections. It is difficult now to secure any lower quotations on mill shipments than 3.30c., Chicago, for No. 27 Black Sheets and 70 and 5 per cent. off, with 15c. freight allowance, on Galvanized Sheets. Jobbers quote small lots of No. 27 Black Sheets at 3.45c. and Galvanized at 70 per cent. off. All jobbers have not yet advanced their Black Sheet prices, but it is expected that they will shortly be obliged to do it.

**Merchant Steel.**—A lively business is being done in taking season contracts from implement manufacturers. The makers of Steel specialties are finding their customers requiring as large quantities as ever and little difficulty is found in securing the top prices on these contracts. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery Steel, 2.70c. to 2.80c.; Smooth Finished Tire, 2.45c. to 2.55c.; Open Hearth Spring Steel, 3.20c. to 3.30c., base; Toe Calk, 2.95c. to 3.15c., base; Ordinary Tool Steel, 6¼c. to 7½c.; Specials, 13c. and upward. Jobbers are asking the usual advances above mill prices.

**Billets and Rods.**—No transactions have occurred in Billets, although inquiries continue to be received by local makers, but they still have none for sale. The Rod mills in this vicinity are again in operation, after having been shut down from the 1st inst. for repairs and the settlement of the wages schedule. They are running on contracts previously taken, so that no new sales are reported.

**Rails and Track Supplies.**—Inquiries are being received for numerous lots of Standard Rails for deliveries which manufacturers are unable to consider. Small quantities have been sold for December delivery at \$31. Light Rails have been sold for Mexico and for the domestic trade, probably aggregating 1000 tons, at \$30 upward, according to weight. Track Supplies are quoted as follows: Steel Fish Plates, 1.70c. to 1.80c.; Iron Fish Plates, 2.50c.; Spikes, 2.50c.; Track Bolts, with Hexagon Nuts, 3.10c. to 3.15c.; Square Nuts, 2.90c. to 3c.; Steel Links and Pins, 2.55c. to 2.60c.

**Old Material.**—The market is quiet, with considerable strength shown in Old Iron and Steel Rails, but easy in other respects. Scrap is dull, notwithstanding the high price of Pig Iron. The large consumers are keeping down prices of Busheling Scrap and Old Car Wheels. Dealers' selling quotations are as follows, per gross ton: Old Iron Rails, \$19; Old Steel Rails, mixed lengths, \$15; Old Steel Rails, long lengths, \$15.50; Relaying Rails, \$19 to \$20; Old Car Wheels, \$15.50; Heavy Melting Scrap, \$13; Mixed Steel, \$11. The following selling prices are per net ton: No. 1 Railroad Wrought, \$16 to \$16.50; Dealers' Forge, \$11.50 to \$12.50; Fish Plates, \$17; No. 1 Mill, \$8.50 to \$9; Heavy Cast, \$12 to \$12.50; Stove Plates, \$7.75; Iron Car Axles, \$19 to \$20; Horseshoes, \$12 to \$12.50; Cast Borings, \$6.50; Steel Axle Turnings, \$8.25; Iron Axle Turnings, \$8.75; Machine Shop Turnings, \$7.50 to \$8.

**Metals.**—The situation is unchanged. Carload lots of Lake Copper are quoted at 18½c. and Western 17¼c. Spelter is maintained at 6.12½c. Pig Lead is steady at 4.55c. to 4.57½c.

**Tin Plate.**—A heavy demand is reported, especially for Ternes. The demand is considerably larger than some of the leading jobbers are able to conveniently handle. Shipments cannot be received from the mills fast enough to keep up assortments. Prices are maintained at the full recent advances.

## Philadelphia.

Office of *The Iron Age*, Forrest Building, }  
PHILADELPHIA, PA., July 25, 1899. }

It is difficult, if not impossible, to find any weak spots in the Iron and Steel situation. Mills and furnaces are all crowded to the utmost to make deliveries, and within reasonable limits they are equally crowded with work for future delivery. They might be more so if it was regarded safe or desirable to accept all the business that is offered, but there is a disposition to go slow, the experience of the past six months having been somewhat admonitory in this respect. It is pleasant to have all the business that can be handled, but it is decidedly unpleasant to have orders that it is physically impossible to fill, with all the annoyances which such conditions imply. Manufacturers, with very few exceptions, are therefore inclined to be very conservative, both as regards quantities and prices. They are not anxious to advance prices, neither are they anxious to go beyond 60 or 90 days at present prices, which are higher than they have been at any time for many years past. The strength of the situation is in the absolute scarcity of all kinds of material, and apparently at all points. Chicago and the Northwest are taking all the Plates and Sheets that the Eastern mills can spare, while New England points pay so much more for Foundry Irons and Pittsburgh so much more for Mill Irons that markets around here feel in a sense as though they were being robbed of material. Local furnaces would like to quote lower prices for nearby deliveries, but in many cases it is like giving 50c. or 75c. per ton away to quote anything less than \$20.50 for No. 2 X Foundry or \$18.50 for good Mill Irons. Something, of course, depends upon the relative locations of buyer and seller, but all things considered the cheapest markets in the country at this time are to be found within a radius of 100 miles of Philadelphia. As regards the outlook, there is nothing in sight different to what we have had for several months past—viz., plenty of business, with strong and advancing prices.

**Pig Iron.**—The supply of Iron is so small that business is necessarily restricted. Small lots of No. 2 X Foundry sell at \$20.50 to \$20.75, although in some cases \$20 is said to be quoted for fair qualities of the grade mentioned. For long deliveries there is a wide diverg-



ence of views, but neither buyer nor seller seems anxious to make contracts at current quotations. It is just possible that buyers could be found at 50c. to \$1 less money for fall and winter deliveries, but with the present outlook sellers would just as soon take their chances, and quote as they are now doing, month by month, according to the quantity of iron they can spare. Buyers are in much the same mind, long contracts at present prices being regarded as somewhat risky, although there is no expectation of any material concessions from the rates now ruling. The talk of consumption being checked by the high prices, and the possibility of larger supplies during the fall and winter months, tends to promote a conservative feeling, although with such an absolute scarcity of pig iron as there is to-day it seems out of the question to expect lower prices for a long time to come. Furnaces, mills and foundries are all bare of stock, and to impart even a moderate feeling of fullness will require an enormous output of pig metal. The situation is too complicated, however, for any one to formulate any very decided opinion, except that there is no basis yet for figuring on lower prices, consequently trading is, and probably will be for some time to come, as near to hand to mouth as it can be, after providing for known requirements. Prices are very hard to quote with exactness, but the range for Philadelphia and nearby deliveries is about as follows: No. 1 X Foundry, \$20.50 to \$21; No. 2 X Foundry, \$20 to \$20.75; No. 2 Plain, \$19.25 to \$19.50; Standard Mill Iron, \$18 to \$18.25; Basic (nominal), \$20.50 to \$21; Bessemer, \$20 to \$21; Low Phosphorus, \$25 to \$26.

**Billets.**—It is extremely hard to get quotations, as there is so little steel to be had. Buyers need material and prices are anywhere from \$36 to \$37, providing the steel could be had, but it would probably require some special claim for consideration before a firm quotation would be given to any one.

**Muck Bars.**—Nothing doing, buyers and sellers being considerably apart in their views. Bids are about \$35, delivered; asking prices, \$35 to \$36, f.o.b. seller's mill.

**Scrap Blooms.**—Sales of several hundred tons at \$30, f.o.b. seller's mill.

**Plates.**—The demand is as urgent as ever and a great many orders have to be scaled down before they can get attention. Prices are one-tenth higher than they were a week ago, but there is no difficulty in getting a further premium for quick deliveries. Orders from the West and Northwest are still offering in large volume, but only a portion of the business can be accepted. Prices for seaboard or nearby deliveries, for carload lots and upward: 2.70c. to 2.75c. for  $\frac{1}{4}$ -inch and thicker; Shell, 2.85c. to 2.90c.; Flange, 3c.; Fire Box, 3.10c. to 3.20c.

**Structural Material.**—The mills seem to be making very little headway in clearing off their order books and \$2 to \$3 or \$4 per ton premium is paid to secure deliveries during the next 60 days. Nominal quotations are about as follows: Beams and Channels, 2.15c. to 2.25c.; Angles, 2.15c. to 2.40c.; Tees, 2.20c. to 2.25c.; Deck Beams and Bulb Angles, 2.40c. to 2.50c.

**Bars.**—The same conditions prevail as in other departments, full employment, urgency for deliveries and firm prices. Steel Bars have made an extraordinary rise and are quoted all the way from 2.65c. to 3.10c. Iron Bar prices steady, as last quoted—viz., for deliveries at seaboard or nearby points: Ordinary Bars, 1.90c. to 1.95c.; Refined Bars, 2c. to 2.10c.; Test Bars, 2c. to 2.20c.; Steel Bars, 2.20c. to 2.30c.

**Sheets.**—There is an immense demand, not only for the nearby trade, but from almost every leading State in the Union. A great deal of business of this kind has been declined, the regular trade having the first call on all that can be turned out. Prices are about as follows for best Sheets (Common Sheets two-tenths less): No. 10, 3c. to 3.10c.; No. 14, 3.20c.; No. 16, 3.30c.; Nos. 18-20, 3.40c.; Nos. 21-24, 3.50c.; Nos. 26, 27, 3.60c.; No. 28, 3.70c. to 3.80c.

**Old Material.**—There is a better demand, particularly for steel, for which prices are stiffening. Old Steel Rails would bring about \$17; Iron Rails, \$20.50 to \$21; Car Wheels, \$16.50 to \$17.50, and Iron Axles, \$24 to \$25. Sales at prices about as follows, for deliveries in buyers' yards: Cast Borings, \$11 to \$11.25; Wrought Turnings, \$12.50 to \$12.75; Machinery Cast, \$13.75 to \$14.25; Old Car Wheels, \$16.50 to \$17; Heavy Steel Scrap, \$15 to \$16; Steel Rails, \$16.50 to \$17; Iron Rails, \$20 to \$21; No. 1 Railway Scrap, \$19.50 to \$20.50; Iron Axles, \$23 to \$25; Steel Axles, \$17 to \$17.50.

## Cleveland.

CLEVELAND, OHIO, July 25, 1899.

**Iron Ore.**—The past week has been full of developments in the whole line of interests having to do with the transportation of iron ore from the mines to the furnaces. Dominant factors have been redoubled efforts for maximum dispatch in the handling and transportation of the ore by water, resulting in the cargo record for the Great Lakes being broken twice within seven days, and labor difficulties at several Lake Erie ports which have sorely retarded the movement from vessels to furnaces. It may be stated at the outset that, as might be expected, practically no sales of ore have been reported. It seems to be a pretty well established fact, however, that activity in this direction will assume a tangible aspect before the close of August, which month it is predicted will see the first transactions in ore based on the output in 1900. It may be expected, however, that little will be done for several months yet, sales agents showing a decided tendency to conservatism, which is not to be wondered at in view of the lessons afforded by this year's experiences. Reports to the iron ore companies with headquarters at Cleveland show, however, the greatest activity both in the operation of the mines and in prospecting and exploration. The prospecting is likely to be still further increased as a result of the action of the officials of the State of Minnesota in examining all the old mineral land contracts which have stood for some years past and canceling upward of 200 of them. Many of these leases were made at the time of the Mesaba boom, and no move toward development has been made. Some of the canceled leases have already been taken out again, and there can be little doubt that the others will be quickly covered. In this scramble for undeveloped but promising lands the Minnesota Iron Company have been well in the van, and large acquisitions of holdings have been secured by this interest on both the Marquette and Menominee ranges. The labor situation in the mining district, it may be frankly admitted, shows little or no improvements, despite the offer of all sorts of inducement, and the mine interests are rather apprehensive of the future, when the harvesting season may be expected to make, as it always has in the past, heavy inroads on the labor supply at the mines.

Ore sales agents and furnacemen who have for several weeks past been hoping for better showings against a manifest tendency in the other direction have at last been brought face to face with the fact that the estimates of the production of the Lake Superior region made so universally and with such optimism early in the spring and summer have been greatly exaggerated. At that time many seemingly well informed men predicted an aggregate output of 16,000,000 tons. Now it is known that only by especial good fortune will it be enabled to reach the 15,000,000-ton mark. Worst of all there is a strong suspicion that iron ore agents will not be able to meet actual sales, which are said to exceed 14,500,000 tons. There seems to be a disposition to shift the blame. On the one hand the status of affairs is attributed to the inability of the mine managers to get out the ore, while at the mines the claim is made that the blame lies with the transportation end, or rather with the poor dispatch which vessels have frequently had in unloading at Lake Erie ports. Just at present this latter contention can be put forward with entire consistency, for the labor troubles which so retarded the ore movement earlier in the season have broken forth again, although in a new quarter. At Lake Erie ports large forces of ore handlers have gone on strike over seemingly the most trivial pretexts, such as a refusal to discharge old and trustworthy officials disliked by the men. In some cases the handlers have gone back to work after days of delay, but in others, notably at the Hanna docks at Ashtabula, where the demands of the employees were particularly unjust and absurd, the trouble is still on. At the Hanna docks alone more than 1000 men are out. The dock interests seem to feel that it is high time to put a stop to the demands of the men, who are no sooner given one concession than they demand another. A statement has been made that the present trouble will be fought to a standstill, all of which is not of course encouraging for the vessel owner, the iron ore sales agent or the furnaceman. Meanwhile lake freight rates continue firm at \$1 per ton from the head of Lake Superior and proportionately high figures from the other upper lake ports. That the shippers are willing to pay the rates demanded must be attributed solely to a desire to get as much stock pile ore as possible down the lakes before the heavy movement of grain and other commodities late in the season sends the tariff to even higher figures. As a consequence the ore shippers, although they are finding it necessary to pay pretty stiff prices now, will really be in pretty fair shape late in the season. The scramble

for vessels among the Ore interest continues. Corrigan, McKinnie & Co. of Cleveland are the latest to enter the field, and they have within the week secured six small wooden vessels capable of moving 1800 tons of Ore each. No consideration has been named, but it is known that the price was high for wooden vessels.

**Pig Iron.**—The situation shows few changes of a character likely to affect general conditions. The status of affairs made apparent during several weeks past has been emphasized, and it has become more and more apparent not only that the demand for all grades of Iron is far in excess of supply, but that it is likely to continue so for some time to come. As a natural sequence the feeling that the high quotations were due largely to speculation is rapidly dying out, and just in proportion to the disappearance of this feeling we find increased inquiry and a growing volume of transactions for the first half of 1899. No sales of Bessemer for early delivery have been reported for the past week, but a few small lots of Foundry Iron were disposed of, delivery being promised within the next two months. Under these conditions No. 1 Foundry brought \$21.50, and No. 2 Foundry \$21, Valley furnaces. The bulk of the transactions are for the period from January to June of next year, and for this delivery \$20 is the figure generally asked and paid for No. 1 Foundry. Within the past few days a sale of 1500 tons of No. 2 Foundry was made for 1900 delivery at \$19, Valley furnace. Lake Superior Charcoal and Gray Forge are exceedingly scarce with nominal quotations about the same as for several weeks past.

**Finished Material.**—A lull in the market has existed for the past week, but it would seem most likely to have been caused by inability to secure material of any kind rather than anything else. The only sale of any magnitude was a good sized consignment of rivet rounds which brought 2.38½c. For mill delivery Iron Bars are bringing anywhere from 1.75c. to 2c., and Steel Bars, 2.15c. to 2.25c. Pipe quotations range all the way from 50 to 50 and two 10's. No. 27 Plate is at 3.10c. Out of stock considerably higher prices can be realized; indeed for immediate or early delivery any dealer who has the material may secure practically any price he has a mind to ask. Plate and Railroad Rails show no change, and no transactions of any consequence are reported in structural.

**Old Material.**—Quotations show practically no change, but the demand continues excellent. The supply is much better than it was some time ago, and the demand keeps pace. Dealers claim that an advance in prices on certain grades at least may be anticipated at an early date in view of the fact that Scrap prices are lower proportionately than those of other grades of Iron.

### Cincinnati. (By Telegraph.)

Office of The Iron Age, Fifth and Main streets, }  
CINCINNATI, July 26, 1899. }

It looks as though trade in Pig Iron circles was intending to take no vacation this summer, for though just at this writing there is but comparatively little Iron being sold, yet there is a good open-mouthed demand for all that is offered for delivery this year. Last week there was some considerable Iron disposed of, and it is understood that quite an aggregate of warrant stock figured in the total. The inquiry keeps up good and strong, and every condition goes to emphasize the strength of the market. Selling continues well into next year, though there is an evident feeling of conservatism among sellers and a determination not to load up even at present maximum prices. The conservative feeling of a few weeks ago that prices were nearly at the limit has passed away, and the idea now prevails strongly that higher prices are still coming. There has been a gradual hardening of prices. Iron is becoming scarce at the minimum quotations, and some sales have been made at an advance of 25c. over the maximum. There has hardly, however, been a decided advance except in Northern brands, though next week's business will undoubtedly show a change all along the line. We quote, f.o.b. Cincinnati:

Southern Coke, No. 1.....	\$19.00 to \$19.25
Southern Coke, No. 2.....	17.75 to 18.25
Southern Coke, No. 3.....	17.00 to 17.50
Southern Coke, No. 1 Soft.....	19.00 to 19.25
Southern Coke, No. 2 Soft.....	17.75 to 18.25
Southern Coke, Gray Forge.....	16.25 to 16.50
Southern Coke, Mottled.....	16.25 to 16.50
Ohio Silvery, No. 1.....	24.50 to 25.50
Ohio Silvery, No. 2.....	23.00 to 24.00
Lake Superior Coke, No. 1.....	19.75 to 20.50
Lake Superior Coke, No. 2.....	19.00 to 20.00

#### Car Wheel and Malleable Irons.

Standard Southern Car Wheel.....	\$19.00 to \$20.25
Lake Superior Car Wheel and Malleable.	21.50 to 22.50

**Plates and Bars.**—With a strong active demand the price-list stands practically unchanged. We quote, f.o.b. Cincinnati: Bars, at retail, 2.15c., with full extras; Bars, wholesale, 2c. with half extras, 2.15c. with full extras; Bar Angles, 2.35c. for ½-inch and larger; Sheets, No. 10, 2.85c.; No. 27, 3.35c.; Plates, 2.75c. to 2.85c.

**Old Materials.**—The market is unchanged, fairly active and quite strong on the basis of to-day's quotations. We quote, f.o.b. Cincinnati: No. 1 Wrought Iron Railroad Scrap, \$16 to \$16.50; Cast Scrap, \$11 to \$12; Axles, \$19 to \$20; Iron Rails, \$19 to \$20; Car Wheels, \$14.50 to \$15.

### St. Louis. (By Telegraph.)

Office of The Iron Age, 512 Commercial Building, }  
ST. LOUIS, July 26, 1899. }

**Pig Iron.**—Some excellent sales aggregating about 12,000 tons have been made during the week, and for delivery into as far as June next year. It is clearly stated that these transactions were made at the full market prices. More fixed impressions of the stringency in the Iron supply have taken hold of foundrymen the past few days, and quibbling as to prices is left behind. Figures below show some advances over last quotations, and the \$20 mark looms up. The Iron Age's last monthly review of furnace and warrant stocks seems to have plainly shown consumers the conditions confronting them. Local factors in the trade see nothing to weaken the market. As foreign countries are having the same degree of activity as here, nothing to relieve the demand for Iron can be expected from outside sources. Foundrymen are as a whole overcrowded with work, and their total purchases are vastly in excess of last year. We quote for cash, f.o.b. cars St. Louis, as follows:

Southern No. 1 Foundry.....	\$19.75 to \$20.25
Southern No. 2 Foundry.....	19.00 to 19.25
Southern No. 3 Foundry.....	18.25 to 18.50
No. 1 Soft.....	19.75 to 20.25
No. 2 Soft.....	19.00 to 19.25
Gray Forge.....	17.00 to 17.25

**Bar Iron.**—Mills seem taxed to the utmost, and jobbers claim that specifications handed in several months ago have not yet had action. The great demand has somewhat embarrassed consumers, and it is not unusual to learn of heavy operators who have months of orders ahead being seriously affected in some departments by lack of material. Conditions like the present could not well be anticipated, and the usual forethought in laying in stock has proven wholly inadequate to the demand. Prices are unchanged at 1.90c., half extras, St. Louis, for carloads from mill. Jobbers' quotations range from 2.15c. to 2.25c., base, full extras.

**Rails and Track Supplies.**—Trade in Track Supplies is light. A correction in price of Splice Bars is named below, as our last quotation was in excess of the correct figure. We name the following prices: Splice Bars, 2c.; Track Bolts, with Square Nuts, 3c.; with Hexagon Nuts, 3.15c.; Spikes, 2.50c.; Iron Links and Pins, 2c.; Steel Links and Pins, 2.25c. to 2.35c.

**Pig Lead.**—The market continues strong, and a sale of 100 tons Chemical is claimed to have been made at 4.57½c. Refiners, however, hold firmly to 4.60c., although sales may have taken place through outside sources at the lower figure. Lead Ore brought \$27.50 for 1000 lbs., same as last week.

**Spelter.**—A weakening is noticed in the Spelter market, which ranges from 5.65c. to 5.70c., with but little doing.

**Zinc Ore.**—A meeting on August 1 at Joplin has been arranged for between Ore producers and smelters. Better feelings should result from the conference, especially if the several interests will realize that the one cannot well get along without the other. It is said that no unusual production of Ore has been undertaken, miners appreciating that the consumptive demand for Spelter is at present light. The tonnage assessment turned in by members to the Miners' Association has been restored and reduced to 25c., which levy prevailed before the temporary shut down. No export shipments are reported, but it is noted that foreign smelters are keenly alive to the strength with which domestic Ore and Spelter is forcing itself to the front. The scale price for 60 per cent. assay Ore was unchanged at \$43, and top price for the week touched \$44.50.

We may state that the Union Steel Company, with works at Alexandria, Ind., are going to be absorbed by the Republic Iron & Steel Company.

A lodge of the Amalgamated Association has been organized at the Demmler Works of the American Tin Plate Company, at Demmler, Pa.



## Pittsburgh.

Office of *The Iron Age*, Hamilton Building, (PITTSBURGH, July 26, 1899.)

(By Telegraph.)

**Pig Iron.**—The Bessemer Pig Iron market is quiet, but prices are strong at \$20, Valley. There have been small sales during the week, aggregating 5000 to 6000 tons, at that price. Gray Forge is quiet, and for the first time in a long period there is more Mill Iron being offered than is wanted, and prices seem to be a trifle easier. There is only a fair inquiry for Foundry Iron, and the supply seems to be ample to meet all requirements. We quote: Gray Forge, \$17 to \$17.25; Bessemer, \$20; both at Valley furnace; Gray Forge, \$17.50 to \$17.75; No. 2 Foundry, \$19 to \$19.25; Bessemer, \$20.75, all f.o.b. Pittsburgh. It is probable that on a firm offer Gray Forge could be bought at a lower price than is quoted above.

**Billets.**—There is a heavy demand for Slabs, and sales have been made in the past week on the basis of \$34, Pittsburgh, and even higher prices are reported. Basic Open Hearth Billets and Slabs have sold at \$42 to \$45, Pittsburgh, depending on the carbon and the deliveries. There is a good deal of inquiry for Steel from Eastern consumers for delivery within the next couple of months, but little is being offered. One mill is reported to have turned down an inquiry for prompt Steel at \$36 at their mill. We note a sale of 500 tons of Slabs at \$34, Pittsburgh.

**Sheet Bars.**—No large sales are reported. We quote at \$35 to \$36, maker's mill.

(By Mail.)

Nothing of special moment has developed during the week. The volume of new business, especially in Finished Material, has shown a marked falling off since July 1, but specifications on old contracts are coming forward very freely, keeping the mills full of work, and prompt deliveries difficult to get. In many cases mills are still able to secure a considerable advance for material which they may be able to ship out promptly. There have been round sales of Bessemer Pig in the week at the full price of \$20, Valley, while Bessemer Steel has sold in small lots at \$33 to \$34, Pittsburgh. Consumers are looking about with a view of supply for next year, but so far as we can learn little has been done. Prices on all kinds of Finished Material are strong.

**Ferromanganese.**—We continue to quote domestic Ferro at \$85 to \$90, depending on the order.

**Plates.**—There is still a heavy demand for Plates, but not so urgent as some time since. In some cases consumers are buying only for immediate wants, taking chances on prices being higher when they have to come in the market again. Prices are strong, and we quote: Tank, 1/4-inch and heavier, 2.50c. to 2.60c.; Shell, 2.60c. to 2.65c.; Flange, 2.70c. to 2.75c.; Marine, 2.80c. to 2.85c.; Medium Fire Box, 3c.; Best Fire Box, 3.25c. to 3.50c., f.o.b. at mill.

**Bars.**—There is a moderate volume of business in Iron Bars, but the mills are filled up for the next two or three months, principally with orders taken some time since. The tone of the market is very strong, and prompt shipments are hard to get. The Republic Iron & Steel Company are making a distinction of 50c. a ton in favor of the buyer who buys a carload of Bars, to contain not more than five sizes. We quote Common Iron Bars at 1.85c. to 1.90c., half extras, Valley mill. We quote Iron Bars of special grades at 2.05c. to 2.15c., at mill. Demand for Steel Bars is good and prices very strong. We quote Steel Bars, cut to lengths, at 2.05c., at mill, half extras; terms, net 30 days. Small lots for prompt shipment have been sold, we are advised, as high as 2.25c.

**Structural Material.**—No large lots have recently been placed. Probably the biggest tonnage in sight is that for some power houses in New York City, which will take upward of 20,000 tons, much of which is expected to come to Pittsburgh. Considerable tonnage for Western shipment is also being figured on. Prices are unchanged, and we quote: Beams and Channels, 15-inch and under, 2c.; 18, 20 and 24 inch, 2.10c.; Angles, 3-inch and up to 6 x 6 inch, 2c.; Angles under 3 inches, prices on which are not controlled by the Beam pool, are 2.15c. to 2.25c.; Tees, 3 inches and larger, 2c.; Tees under 3 inches, 2.20c. to 2.30c.; Zees, 3 inches and larger, 2c.; Bulb Angles and Deck Beams, 2.30c.; Grooved Rolled Plates, 2.25c., all f.o.b., Pittsburgh.

**Merchant Steel.**—A good demand is reported, some agricultural implement makers having placed considerable tonnage in the past week or two. The mills, however, are employed largely on old contracts booked some time since. We are advised that demand for Tool Steel is very heavy. Prices are strong and we quote: Toe Calk, 2.75c.; Open Hearth Tire, Machine Straightened, 2.75c.; Machinery Steel, Soft, 2.75c.; Hard, 3c.; Common Spring Steel, 3c.; Crucible Analysis, 3.50c.; Tire Steel, 2.50c. to 2.60c.; Plow Slabs, Bessemer, 2.75c.; Open Hearth, 3c.; Sleigh Shoe, 2.75c.; Cutter Shoes, Tapered and Bent, 3.75c.; Crow Bars, Pinch and Wedge Point, 3.50c.; Lay Steel, Rolled, 4c.; Hammered, 5c.; Tool Steel, 6.50c. up to 14c., according to grade. Terms, 60 days, less 20 per cent. cash in ten days.

**Rails.**—There is practically no new tonnage in the market, the mills working altogether on old contracts. We quote at \$30 to \$32, Pittsburgh.

**Sheets.**—There is nothing new to report in the Sheet trade. The mills are well filled up on old orders, while considerable new business is being placed. Prices are strong, and we quote No. 27 Black Sheets, box annealed, one pass through cold rolls, at 3c.; No. 28, 3.05c. to 3.10c. We quote Galvanized Sheets at 70 and 5, with 15c. freight allowance, in carload lots.

**Skelp.**—The Skelp market is very strong, and prompt shipments are difficult to get. We quote Grooved Iron and Steel Skelp at 2.35c. to 2.50c., and Sheared at 2.50c. to 2.75c., depending on how badly the customer needs the material and the sizes. These prices carry with them the usual terms.

**Pipes and Tubes.**—An inquiry for considerable tonnage of Pipe, ranging from 3 to 6 inches in size, for shipment to Mexico, is in the market. Aside from this, there are no large orders being figured on, but there is a good steady demand for Merchant Pipe, and prices are very strong. We quote Merchant Pipe, Butt and Lap Weld, at 50, two 10's and 5 per cent., in carload lots, delivered, and 50 and two 10's, f.o.b. maker's mill, in less than carload lots. A good deal of Pipe is being sold at 50 and two 10's, while in exceptional cases, where jobbers can make prompt shipments, 50 and 10 per cent. has been done. There is no change in Casing, and we quote Screw and Socket Joint at 40 per cent. off, and Inserted Joint at 35 per cent. off, with an extra 5 per cent. to dealers. Boiler Tubes are in very heavy demand, and jobbers are often able to secure higher prices than are given below. We quote: 1 1/4 to 1 1/2 inch Iron and Steel, 40 per cent. off list; 1 1/4 to 2 1/2 inch, Iron, 50 per cent.; Steel, 55 per cent.; 2 1/4-inch and larger, Iron, 55 per cent.; Steel, 57 1/2 per cent., with an extra 5 per cent. to dealers. On carload lots freight is allowed, and on less than carload lots prices are f.o.b. maker's mill.

**Connellsville Coke.**—All records for production and shipments of Coke in the Connellsville region have been broken, production last week and shipments being much the largest of any one week in the history of the famous Connellsville region. Some idea of the activity prevailing can be formed when we state that out of 18,696 ovens, 18,062 are active and only 634 idle. The H. C. Frick Coke Company, who own in round numbers 13,000 ovens, have every one in blast except 24 at Sterling No. 2. In the last week or two the following ovens have been fired by the H. C. Frick Coke Company: Leisenring, No. 1, 50 ovens; Sterling No. 2, 20; Bessemer, 70; Alverton No. 1, 27; United No. 2, 51. The Hostetter Connellsville Coke Company put into blast every oven, firing 63 at Hostetter and 61 at Whitney, while in the same district the Hecla Coke Company went up to the limit by firing the 27 ovens at Hecla No. 1, and the remaining 50 ovens at Hecla No. 2. The production of Coke in the Connellsville region last week was 190,792 tons, as compared with 173,322 tons the week previous. The shipments last week aggregated 10,238 cars, distributed as follows: To Pittsburgh and river tipples, 3283 cars; to points west of Pittsburgh, 4730 cars; to points east of Connellsville, 2225 cars. This is an increase of 1499 cars, as compared with the shipments for the week previous. We understand that as high as \$2.40 and \$2.50 has been paid by consumers for prompt shipments of Foundry Coke. We quote strictly Connellsville Furnace Coke, \$2.25, and Foundry Coke at \$2.30 to \$2.40, to consumers, in tons of 2000 pounds, f.o.b. cars at oven.

The general offices of the National Tube Company will be located on the sixth and seventh floors of the Conestoga Building, Wood and Water streets, Pittsburgh, Pa.

The Tyler Charcoal Iron Tin Plate Mills, recently organized by Col. W. P. Tyler, W. H. Griffiths and others of Washington, Pa., it is reported, will add an open hearth plant to the works now in course of erection. The contract for its construction has been awarded to Wm. Swindell & Bros. of Pittsburgh. The Tin mill equipment will consist of three hot and two cold mills.



## Birmingham.

BIRMINGHAM, ALA., July 21, 1899.

The past week there were some variations in prices, but the market on the whole was strong. There was some competition for certain orders that led to a concession in price and the buyer was benefited. While quotation of No. 2 Foundry still stands at \$15 there was pretty strong evidence that that price was not strictly adhered to, and the assertion was made that some orders were booked at \$14.50. That means, of course, long delivery, for spot and nearby deliveries bring full quotations and instances are frequent where they command a premium. The other grades held their own very well. On the market prevailing fluctuations are unavoidable. The profit on Iron now is large enough to permit of the favorable consideration of orders from desirable customers, and one must expect to occasionally find a gap in the fence of prices. An active demand quickly closes it again. As to inquiries, they were very fair and led to transactions equal in volume to the current make. This is very satisfactory to the furnaces. The output of the Tennessee Company is now approximately 65,000 tons per month. The Sloss Company won't run under 20,000 tons and may go to 25,000. The published report of the Tennessee Company for June shows a net profit of \$116,459. After paying fixed charges, interest on bonds &c., there was left a net surplus of \$69,896. From January 1 to July 1 the net earnings were \$509,862 and the fixed charges were \$279,378, leaving a net surplus of \$230,484. This is the only furnace company here who publish their financial condition, but one can say without drawing "a long bow" that the others could make a showing equally as favorable, for prosperity has touched all with the same generosity.

The air is full of rumors of absorptions, combines and consolidations. Some of them are founded on substantial facts, while several have no better authority than the willingness to be absorbed, combined or consolidated for a satisfactory consideration. Rumor is yet busy with the Sloss Company, but nothing has yet happened to justify any certain mention of conclusive action. It seems that more than one large interest is favorable to an intermarriage with the Sloss Company. That suitor for the name, the rights, privileges and hereditaments of the company will be favored who puts up the most gold for the prize. It's a question of money.

From a very good source comes the report that a sufficient amount of the stock of the Kansas City, Memphis & Birmingham road has been secured to control it. The "on dit" is that Baltimore parties engineered the deal in the interest of parties who were largely interested in the Seaboard Air Line as well as in this district. It would be a valuable adjunct to either the Seaboard Air Line or the Illinois Central Railroad.

The Vanderbilt furnace had the fires lighted to-day to dry out the linings and they commence the making of Iron before the end of the month, thus adding to the list of furnaces a 100 ton producer. The output of the Vanderbilt for 12 months ahead has been sold. So in one sense their product will not compete with other brands.

On the 21st inst. freights were advanced on Iron and there was a great rush to get off maturing contracts. One interest was fortunate enough to get off with only 50 tons short, while some were caught with thousands of tons that will pay the increase in rate. In some quarters the note of warning has gone out that a shortage in cars is probable in the near future that will grow to an acute stage when the fall business begins to move. The Alabama Car Service Association reported for June the largest number of cars handled in any one month in its history. When you add to these facts that tonnage to be moved will be largely increased when the Rod and Nail mill and other large plants commence operations, the importance of the district to the railroads permeating it is clearly apparent. The developments going on and those not yet advanced beyond contemplation will not only add to the tonnage but also add to railroad mileage. The country is overrun with prospectors and promoters, after options on Ore and Coal and timber lands wherever they strike a favorable looking lead, and no inconsiderable amount has changed hands and the work goes bravely on. To a chronic optimist it looks as if the entire district is being syndicated. It has never been so thoroughly explored for good prospects to put in with something else good, so that the syndicate of holders can exchange their properties with the owners of gold who can put them in a trust. And "any old thing don't go," either. Experts must examine the property and experts calculate its productive capacity and value and its probable adaptability as a dividend payer. Nothing is left to chance that close and careful calculation can avoid.

There is not a bit of trading going on of "the spur of the moment" kind. The party, therefore, who approaches investors finds out that if he has a good thing they want it and take it. If they decline then he has the melancholy reflection left that "there's nothing in it." Trading is increasing both in Coal and Ore and city property. Values

on the former are at once advanced greatly to all but the tax gatherer. In several instances early buyers have realized in a short time "the Dutchman's 1 per cent." and doubled their money. The same thing has happened in city property. It's a pity 'tis so, but it's a fact that too many people largely interested in the district reside elsewhere, and we fail to benefit from the profits they derive from the district.

## The English Iron Trade.

**Summary.**—The satisfactory accounts of the state of trade which continue to be received from all parts of the country testify to the steadiness of the conditions underlying the present activity in industrial districts. The demand for Pig Iron, far from exhibiting any signs of diminishing, remains far in excess of the supply, and is accompanied by a steady rise in prices, which has its effect upon the Finished Iron and Steel trades, both of which are in a state of unexampled prosperity. Engineering and shipbuilding continue to manifest similar satisfactory conditions, while reports from abroad show that the wave of activity is by no means confined to this country, but is shared in both on the Continent and in America.

**Pig Iron.**—There is every indication that the strong tone which has prevailed in the Pig Iron trade for so long past will remain characteristic of business for some considerable time forward. A further rise has occurred this week in the price of Cleveland Pig Iron, making it higher than it has been for 27 years past, while it is 30 shillings per ton higher than it was a year ago, and by no means unlikely to advance another 10 shillings within the next few months. A feature of the present trade position has been its steadiness, for although, owing to a variety of causes, prices have now and again skipped forward, the net result has been a long and steady advance with only a few trifling setbacks to counteract the prevailing tendency. Rubio has risen in price and East Coast Hematites are now quoted up to 75 shillings per ton, but in this case the rise has not been so considerable as in that of No. 3 Pig, and the difference in prices between the two makes is less than it has been for a long time past. In Barrow a steady trade is being done, and mixed numbers are being quoted at 76 shillings per ton, while Ore prices are moving upward. On the Manchester market business continues to be hampered by the smallness of the tonnage offering. Demand is full, but stocks are depressed, and makers find it impossible to entertain inquiries for prompt deliveries. Throughout the South Staffordshire district the scarcity of Coke and high prices charged are causing serious inconvenience. Demand for Pig Iron is far in excess of the supplies, but makers continue to postpone the lighting of new furnaces, preferring not to risk the expenses thereby entailed while any uncertainty exists as regards the continuation of the present conditions. Scotch makers are very busy. The exports of Pig Iron for the past month show a notable increase, and are much higher than those usually shipped during June.

**Manufactured Iron and Steel.**—Prices continue to advance, and each week sees quotations raised, if not in one district, then in another. Last week the rises were chiefly confined to Cleveland and the North, while this week it is in Lancashire and Staffordshire that the most notable increases have occurred. Business remains very full in all departments, and far from there being any lack of work, manufacturers find it almost impossible to cope with the steady demand, and are, in many cases, months behind as regards deliveries. The holidays will soon be here, but, as may be imagined, they will be made as short as possible, the active condition of all branches of trade being such as to preclude all thoughts of a lengthy stoppage. In Scotland they occur rather earlier than they do in this country, and already the additional activity entailed by the endeavor of manufacturers to discharge as large a proportion of their many obligations before closing is making itself strongly felt. Lancashire firms have this week raised their quotations, both for Finished Iron and for Steel, while in the Midlands the demand for the latter is so far in advance of any possible supply that makers both in Yorkshire and in Staffordshire are compelled to reject orders owing to their inability to further increase their undertakings.

**Engineering and Shipbuilding.**—The greatest activity prevails in both these industries. In the former almost all branches are equally well engaged, but if any are busier than the others they are locomotive builders and electrical engineers. The former are so pressed for deliveries, already greatly in arrears, that they have of late had to decline numerous orders which have gone to the United States and even to Germany and Belgium instead. The latter are so well provided with work that steady employment for quite six months ahead is fully assured.

Shipbuilders, particularly on the Clyde, are doing well, although the condition of this industry hardly equals, in point of activity, that prevailing about 12 months ago.

**Comparison of Prices.**—The annexed table shows the current prices compared with those of last week, and of the corresponding period last year:

	July 14, 1899.	July 7, 1899.	July 15, 1898.
<b>Iron Ore—</b>	s. d.	s. d.	s. d.
Rubio, Middlesbrough.....	17 0	17 0	14 6
Rubio, Cardiff.....	15 9	15 6	13 6
Pottery Mine, North Staffordshire..	14 6	14 6	12 6
Hematite, West Coast (at mines)....	16 0	16 0	13 6
<b>Pig Iron—</b>			
No. 3 Foundry, Middlesbrough.....	71 0	68 9	40 6
Warrants, Middlesbrough.....	71 2	68 9	40 3½
Scotch Warrants, Glasgow.....	71 0	69 4	46 0
Hematite Warrants, West Coast.....	73 0	74 8	50 8½
Cold Blast (Foundry), South Staffordshire.....	110 0	110 0	105 0
Welsh Hematite, Cardiff.....	75 0	74 0	.....
<b>Manufactured Iron and Steel—</b>	£. s. d.	£. s. d.	£. s. d.
Marked Bars, South Staffordshire...	9 0 0	9 0 0	7 10 0
Common Bars, South Staffordshire...	8 0 0	8 0 0	6 0 0
Steel Rails, Middlesbrough.....	5 7 6	6 2 6	4 10 0
Steel Rails, West Coast.....	5 7 6	5 17 6	4 10 0
Steel Rails, Cardiff.....	5 15 0	6 2 6	.....
Steel Angles (eng.), Middlesbrough...	7 2 6	7 2 6	5 13 9
Steel Angles (eng.), Glasgow.....	7 0 0	7 0 0	5 15 0
Steel Plates (ship), Middlesbrough...	7 10 0	7 10 0	5 17 6
Steel Plates (ship), Glasgow.....	7 10 0	7 10 0	5 17 6
<b>Tin Plates, Bessemer I.C. Cokes, South Wales.....</b>	s. d. 15 3	s. d. 14 6	s. d. 9 9

—Iron and Coal Trades Review, July 14, 1899.

## New York.

Office of *The Iron Age*, 232-238 William street, {  
NEW YORK, July 26, 1899. }

**Pig Iron.**—The market remains very firm and consumers are buying steadily in moderate quantities to fill up gaps in deliveries and to cover contracts taken. From some quarters comes the complaint of falling off in business, but it is traceable to special causes. Thus the buyers of Soil Pipe seem to have been stocking up pending the formation of the consolidation. We cannot trace much purchasing for 1900 delivery. In one case a lot of about 5000 tons was sold, but the furnace guaranteed prices. There has been renewed activity in warrants, the iron sold being, it is said, the balance of Scotch holdings. A letting for 900 tons of Ballast Iron for Government transports brought out tenders ranging from \$16.40 to \$22 delivered, the first named being referred to as unfit for either foundry or forge purposes. The leading Virginia interest is reported to have made sales lately aggregating about 20,000 tons. We quote as follows: Lehigh and Schuylkill Irons, No. 1 Foundry, \$20.50 to \$21; No. 2 X, \$19.50 to \$19.75; No. 2 Soft, \$18.50 to \$18.75; No. 2 Plain, \$18.50 to \$18.75, and Gray Forge, \$17.50 to \$18. Southern brands are quoted: No. 1 Foundry, \$20 to \$20.50; No. 2 Foundry, \$18.75 to \$19; No. 1 Soft, \$19.50 to \$19.75; No. 2, \$18.50 to \$18.75, and Gray Forge, \$17.25 to \$17.50.

**Steel Rails.**—No sales of any magnitude are reported by the Eastern mills and the inquiries on the market are small. Among them we note two lots for Southern roads. We quote nominally \$29 and \$30 at mill for heavy sections.

**Track Fastenings.**—We quote Angle Bars 1.80c. to 1.90c.; Spikes, 1.90c. to 2c., and Bolts and Nuts, 2.25c. to 2.30c.

**Finished Iron and Steel.**—None of the large contracts pending have been closed during the past week. It is estimated that the total tonnage which will come out during the next month or two will aggregate about 50,000 tons. Some of the large mills cannot promise delivery until the beginning of February on orders placed now. We quote as follows: Beams, 2.15c. to 2.20c.; Angles, 2.15c. to 2.20c.; Universal Mill Plates, 2.50c. to 2.60c.; Tees, 2.20c. to 2.25c.; Channels, 2.15c. to 2.20c.; Steel Plates are 2.60c. to 2.65c. for Tank, 2.70c. to 2.75c. for Shell, 2.80c. to 2.90c. for Flange, 2.90c. to 2.95c. for Fire Box, 2.90c. to 3c. for Locomotive Fire Box, on dock. Refined Bars are 2c. to 2.05c. and Common Bars are 1.80c. to 1.85c., on dock. Soft Steel Bars, 2.05c. to 2.10c.; Steel Axles, 2c. to 2.10c.; Scrap Axles, 1.90c. to 2c.; Links and Pins, 1.75c. to 1.80c.; Hoops, 2.42½c., base, delivered.

## Metal Market.

Office of *The Iron Age*, 232-238 William street, {  
NEW YORK, July 26, 1899. }

**Pig Tin.**—The skyward movement of this metal is still in progress, and the work of the manipulators will best be seen by reviewing the London quotations for the entire week. On Thursday the market opened with £133 5s. as the closing spot quotation from London. The next day brought the figures up to £137, and the rise continued until Monday's figures showed £139 5s. These figures were followed the next day by £142 2s. 6d. and to-day, after having reached £144, the London mar-

ket closed at £143 15s. for spot and £144 15s. for futures. Here the market is in an unsettled state, although it is said that in one quarter the demand for spot and futures was heavy. Rumor on the street has it that the entire speculative movement in Tin is receiving its momentum in this country, and that whatever is done in London is guided by American interests. It is said that certain brokers here are acting for Boston and New York financial interests. The market to-day closed in a very unsettled shape and the quotations given ranged between 31¼c. and 32½c.

**Copper.**—Firmness still marks this market. Quotations are unchanged at 18¼c. for Lake and Electrolytic at 17¼c. to 17½c., while Casting is held at 17¼c. to 17½c. Spot is exceedingly scarce, and whatever nearby can be obtained is taken at fancy prices. The London market has been very quiet throughout the last week and speculative business is very small. The closing quotations to-day were £77 1s. 3d. for spot and £77 11s. 3d. for three months' futures. Best Selected is unchanged at £80 15s.

**Pig Lead.**—This market is quiet, and, although stocks are said to be small, a slight decline in price has brought the figure down to 4.55c. to 4.57½c. in this market. For St. Louis the same price is quoted, as is also the case in Chicago, while we understand that the American Smelting & Refining Company are asking 4.65c. for Philadelphia and Boston. It is said that consumers both here and abroad are buying freely. London is firm and unchanged at £14 10s.

**Spelter.**—On the spot is scarce, and quoted at 6.20c., while futures, it is said, can be had for 5.80c. to 5.90c., and, in fact, it is said that purchases can easily be made at 5¾c. St. Louis is easy at 5.55c., and London has declined slightly to £25 15s. We are informed that certain mines have contracted for their product up to November, and that it is exceedingly difficult to purchase for July or August. Parties dealing with houses on the other side state that in Europe consumers are afraid that exports which they expect from this country will increase materially. The Ore market is unchanged at \$44.50 per ton. On August 1 a meeting of the smelters and miners' association will be held at Joplin, and an endeavor will be made there to formulate an agreement between these two bodies, or at least wipe out the hard feelings which exist and endeavor to work on a mutual basis.

**Antimony.**—It is said that recent sales of this metal have been made at 9¼c. for Hallett's. We quote Hallett's 9¼c. to 10c.; Cookson's is unchanged at 11c.

**Nickel.**—There is no change in the tone of the market, and demand continues pretty strong. Prices for Canadian Nickel range from 36c. to 40c. for lots larger than 1000 pounds, and 40c. to 50c. for smaller quantities.

**Tin Plate.**—An increased demand is the only feature to be noted this week. The American Tin Plate Company are still said to be quoting 4.55c. to 4.60c. for 100-pound Cokes, New York, for September and later delivery.

The annual statistical report on Lead, Copper, Zinc, Tin, Silver, Nickel, Aluminum and Quicksilver compiled by the Metallgesellschaft and the Metallurgische Gesell. A. G. of Frankfurt, A. M., Germany, has just been issued in the German language. The American Metal Company of this city represents the two firms named.

Dickerson, Van Dusen & Co., Tin Plate and metal merchants, who, a couple of months ago, were obliged to vacate the premises which they had long occupied, at the corner of Fulton and Cliff streets, New York City, by reason of a fire, have decided to relinquish their former quarters and remain permanently at 27 Cliff street, to which place the firm removed temporarily. They have secured a lease of the entire building, which was for many years the abiding place of the late firm of T. B. Coddington & Co. The building, which is being renovated and refitted, will not only give Dickerson, Van Dusen & Co. more space than they possessed at their former location, but it also possesses far better facilities for handling goods, as it stretches clear through to Rider's Alley, giving facilities for receiving and shipping both at the front and the rear.

It is understood that the proposed combination of manufacturers of plumbers' supplies, under the title of the American Plumbing Supply and Lead Company, has been abandoned owing to difficulties encountered in financing the scheme.

Promoters of the railroad coal organization at Pittsburgh report that it is progressing favorably and a meeting of the concerns to be consolidated will be held in a short time. The work of appraisal is going on and is expected to be completed within the next ten days.



## QUOTATIONS OF IRON STOCKS DURING THE WEEK ENDING JULY 26, 1899

Cap'l Issued.		Sales.	Thursday.	Friday.	Saturday.	Monday.	Tuesday	Wednesday
\$47,100,000	Am. S. & W., Common.....	21,860	55½-56½	55½-56½	56½-56½	56 -56½	56½-56½	56 -57
38,150,000	Am. S. & W., Pref. (7% Cu.)....	1,675	-96	95½-96	95½-96	-96	-96	96½-96½
9,250,000	Col. Fuel and Iron.....	1,425	-45	45½-46	45½-46	-45½	-45	-45½
46,484,300	Federal Steel, Common.....	13,035	57½-57½	58½-58½	58½-58½	57½-58	57½-58½	57½-58
53,253,500	Federal Steel, Pref. (6% Non-Cu.)	3,755	80½-81	79½-80½	80 -80½	80½-81	80½-81	80 -80½
20,000,000	Tennessee Coal and Iron.....	8,775	69½-69½	69½-70	68½-69	-68½	69 -69½	69 -69½
7,974,550	Cambria Iron, Phila*.....	167	-45½	-45½	-45½	45½-45½	-45½	-45½
16,000,000	Cambria, Steel***.....	1,795	-22½	-22½	22½-23	22½-23	-23	-23
5,000,000	Penna. Common, Phila.....	175	89 -89½	-89½	-89½	-89	-89	-89
1,500,000	Penna. Pref., Phila.....	61	-90½	-90½	-90½	-90½	89 -90½	-90½
28,000,000	Tin Plate Common, New York..	3,945	37½-38	38½-38½	38½-38½	37½-38½	37½-38½	38 -38½
18,000,000	Tin Plate Pref., N. Y. (7% Cu.)..	857	-85	-85	-85	85 -85½	85 -85½	-85½
28,000,000	Tin Plate Com., Chic.....	1,025	37½-38	-38	38 -38½	-38	38 -38½	-38½
18,000,000	Tin Plate Pref., Chic. (7% Cu.)..	248	85 -85½	-85	85 -86	85½-86	-85	-85
32,000,000	National Steel Common, Chic..	409	-49	-49	-49	-49	-49	-49
27,000,000	National Steel Pref., Chic. (7% Cu)	711	-91	91 -91½	91 -92	-92	91 -91½	-92
32,000,000	National Steel, Common, N. Y..	4,310	-49	49½-49½	49½-49½	-49½	49½-50½	49½-50
27,000,000	Nat'l Steel, Pref., N. Y., (7% Cu.)	2,730	-91	91 -91½	91 -91½	91 -91½	91½-91½	91½-91½
7,500,000	Bethlehem Iron.....	195	-63½	63½-63½	-63½	-63½	63½-63½	-63½
.....	Bethlehem Steel Rights.....	1,007	-22½	-22½	-22½	22½-22½	22½-22½	-22
12,500,000	Pressed Steel, Common.....	3,060	-51	51 -51½	-51	51½-52½	52 -55½	-55
12,500,000	Pressed Steel, Pref. (7% Non-Cu.)	5,355	-83	83½-83½	-83	84½-85½	85½-85	-87½
19,000,000	Am. Steel Hoop, Common.....	7,625	-29½	29½-30	-30	30 -30½	30½-32½	31½-32½
14,000,000	Am. Steel Hoop, Pref. (7% Cu.)..	2,848	-77½	-77½	-77½	77 -77½	77½-78½	-77½
.....	Am. Car & Foundry, Common..	2,085	-15½	-15½	-15½	15½-15½	-15½	15½-16
.....	Am. Car & Foundry, Preferred.	1,485	60 -60½	-60½	-60½	60½-60½	-61	-62½

\* Par \$50. \*\* Par \$100 \*\*\* \$1.50 per share paid in. Late Philadelphia and Chicago sales by telegraph.

**Bonded Indebtedness:** Am. S. & W., \$730,000; Am. Tin Plate, none; Am. Steel Hoop, none; Federal Steel Co., \$13,200,000; Illinois 5%, \$7,417,000; E. J. E. R. R. 5%, \$1,600,000; Johnson 6%, \$6,732,000; D. & I. R. R. 5%, \$1,000,000; 2d D. & I. R. R. 6%, \$10,000; land grant D. & I. R. R. 5%; National Steel, \$2,561,000; Tennessee C. I. & R. R. Co., \$8,367,000; 6%, \$1,114,000; 7%, \$1,000,000; 7% cu. prof.; Pennsylvania Steel, \$1,000,000; Steelton ist; \$2,000,000; Sparrow's Point ist, \$4,000,000 consolidated, both plants; Bethlehem Iron, \$1,351,000.

## Iron and Industrial Stocks.

The Warwick Iron & Steel Company of Philadelphia have declared their first quarterly dividend of 2 per cent., payable August 10.

The Committee on Securities of the New York Stock Exchange will meet, subject to the call of the chairman, to adjust the equities of stockholders of the Federal Steel Company entitled to the dividend of 1¼ per cent. declared by the directors, payment of which was subsequently enjoined. The Federal Steel directors, on their part, have ordered the books of the company for both classes of stock closed from July 25 to such time as the matter is settled; and also fixed the dates for preferred stock dividend declarations for the second Tuesday in March, June, September and December of each year.

Trading in the Iron stocks has been light in all the leading markets, although the general tendency has been toward higher values. The feeling is spreading in trade circles that in the fall an important upward movement may be expected, based on heavy past and prospective earnings.

It is understood that at that time, too, a considerable number of schemes now "hibernating" will be brought forward.

	Bid.	Asked.
International Silver, common.....	12	15
Otis Elevator, common.....	34	36
Otis Elevator, preferred.....	92	94
H. B. Worthington, preferred.....	109½	110½
Cramp's Shipyard Stock.....	83	86
Pratt & Whitney, common.....	3½	4
Pratt & Whitney, preferred.....	38	48
E. W. Bliss, common.....	138	...
E. W. Bliss, preferred.....	125	100
U. S. Projectile.....	95	100
Barney & Smith Car, common.....	21	25
Barney & Smith Car, preferred.....	81	86
International Pump, common.....	22	24
International Pump, preferred.....	66	67½
Republic Iron & Steel, common.....	18	18½
Republic Iron & Steel, preferred.....	63	65
Diamond State Steel.....	7½	7½
Tidewater Steel.....	13½	14
Warwick Iron & Steel.....	12½	12½

The Oil Well Supply Company department of the National Tube Company, Pittsburgh, have sent a drilling outfit for artesian wells to Sumatra.

A diamond stone saw, for the cutting of the hardest sandstone like wood, has recently been tried in the Taymouth Engineering Works at Carnoustie, in the presence of a large number of experts. The saw is circular and 5 feet in diameter. It can deal with a block 10 feet long and 2 feet thick.

The Eckel Bros. Steel Company, Syracuse, N. Y., report starting up with absolutely new works, with one 13-inch train and one heating furnace. The work will be composed principally of Bessemer steel; they will, however, use billets in different carbons. The output will equal 40 tons per day, double turn.

A cable dispatch from Basle, Switzerland, announces the death of Nicholas Ruggenbach, the builder of the A. g. l. Railway.

## The British Westinghouse Company.

Details have come to hand regarding the British Westinghouse Electric & Mfg. Company, Limited, recently incorporated in England, which show the capital of the company to be £1,500,000, of which £1,000,000 are 6 per cent. preference shares in 200,000 shares of £5 each, and £500,000 are ordinary shares in 50,000 shares of £10 each. £500,000 of the above preference shares were offered to the public, of which £150,000 have been subscribed by the company and their friends.

The directors of the company are J. Annan Bryce, late director of the Naval Construction & Armaments Company, Limited; C. W. Benson, Joseph Lawrence, chairman of the Linotype Company, Limited, and chairman of the Machinery Trust, Limited; Hon. R. Clere Parsons, M.I.C.E., A.I.E.E., late partner in the firm of Kitson & Co., Leeds, and George Westinghouse and Lemuel Bannister of the Westinghouse Electric & Mfg. Company, Pittsburgh. Lord Kelvin is the technical adviser of the company, and Arthur E. Scanes is the secretary, with temporary offices at Cornhill Chambers, 63 Cornhill, London, E. C.

According to the prospectus issued by the promoters the company have been formed for the purpose of establishing works for the production of every description of electrical machinery and appliances on a larger scale than any now existing in England, and thus meeting a demand that has hitherto been largely supplied from foreign sources. With this object this company have entered into an agreement with the Westinghouse Electric & Mfg. Company (the American company), whereby valuable rights for the United Kingdom, its colonies, its possessions, protectorates and dependencies (except those in North America) are secured to this company.

The American company agree to transfer to this company their numerous valuable patents for the territory above mentioned, and further, for a period of ten years, to communicate all improvements they may make, and supply all plans, specifications and information necessary to conduct their manufacturing operations to the best advantage. This company, by availing themselves of the accumulated experience and technical assistance of the American company, will thus avoid heavy experimental expenditure in establishing their business. The orders for plant and appliances for this company's territory for the year ended June, 1898, are certified by the vendors to the board at £130,613, and for the year ended June, 1899, £266,528.

The American company guarantee that the profits resulting from the business for the first two years shall amount to a sum not less than sufficient to pay the dividend upon the amounts called up on the preference shares during that period, so that pending the completion of the factory, which is estimated to take 18 months at the outside, the 6 per cent. to the preference shareholders is assured.

An area of 105 acres has been secured at Trafford Park, Manchester, on the margin of the Manchester Ship Canal, and plans have been completed for covering 40 acres with buildings, the steel work for which will be shipped from the United States direct to the site of the



plant. The project provides for a force of 5000 workmen.

While the British Westinghouse Electric & Mfg. Company, Limited, will have for their territory the entire British Empire, with the exception of Canada, this is understood, however, to be only one feature in a more ambitious scheme. A French company have already been organized, and others are said to be in course of formation for Russia and Germany, and possibly for Belgium and Austro-Hungary. All these companies will aid and reinforce each other in every way, sharing all patent rights and trade secrets. It is proposed that the heads of the establishment shall meet for council and the interchange of ideas at frequent intervals, and that while the companies shall be financially independent, yet that they shall act in harmony. The protective laws of the various States will assure certain areas to some of them, while in neutral markets competition between the various companies will be prevented or modified by agreements, so that there is no likelihood of jealousies arising to bar the free interchange of experience and information, which is one of the most important features of the project.

### Central Foundry Company.

The recently incorporated Central Foundry Company concentrates all the tradesmen in the soil, drainage and fittings business in this country. The corporation was formed with a capitalization of \$14,000,000 and an issue of \$4,000,000 of 6 per cent. bonds. The capital stock is to be divided equally into common and preferred, the latter to pay 7 per cent. dividends. The corporation has secured an office at 100 Broadway.

Officers have not yet been elected, but they will be selected at the next meeting, and it is understood that the following men will be chosen: John Reid, general manager and treasurer of the Jordan L. Mott Iron Works, president; Alfred Fowle, Jr., first vice-president; Robert A. Regester, second vice-president and supervisor of foundries; G. Schumacher, secretary; W. S. Riens, purchasing agent and assistant to general manager; W. L. Rogers, treasurer.

### The New York Machinery Market.

Office of *The Iron Age*, 232-238 William street, New York, July 26, 1899.

Under the title "Deutsche Garvin-Maschinen-Fabrik Actiengesellschaft, Berlin," with the co-operation of the Berliner Bank, a stock company was formed in Berlin with a capital of 2,500,000 marks. The new company will erect a factory in the vicinity of the store now operated by the Garvin Machine Company in Berlin, and the new company will also take over this store. The factory will manufacture American machine tools of the Garvin design. The directors of the new company are Bank Director Klewitz, chairman; Geo. K. Garvin, president of the Garvin Machine Company, New York; Alexander Lucas, Berlin; Hugo Stinnes, Mulheim, a. R.; Oskar Hahn, Berlin ("Hahn'sche Rohrenwalzwerke"); Architect Joseph Becker, Berlin (Railway builders, Becker & Co.); August Kirschbaum, Solingen, representative chairman. As manager was chosen Rudolf Kirschbaum (Wilkinson Sword Company) of London. The Garvin Machine Company of New York have engaged to furnish all machinery needed for the new factory and store for a term of years.

Reports in the trade indicate that business is continuing in a very satisfactory manner in all machinery lines. Considering the season of the year results are good and prospects exceedingly promising. Although there have been no large deals in hand during the last week the average run of orders are reported to have been excellent.

The largest contract which the trade expected to have seen closed was in the line of boilers. The tip was given out in the boiler trade a week ago that the Manhattan Railroad Company would close for the 32,000 horse-power of boilers for the new power station to be erected at Seventy-fourth street and East River. Up to this writing the contract has not been awarded. We are reliably informed that George Barrus, consulting engineer of Boston, has for the last few days been in consultation with the Manhattan officials in regard to the boiler situation. It is also stated that the purchases, which are now under way, constitute but two-thirds of the entire equipment, and that the engine contract, which was placed with the E. P. Allis Company two weeks ago, is also for but two-thirds of the proposed installation.

Word is being quietly passed along to the effect that the Edison Electric Illuminating Company are about ready to call for bids for equipment for the new station which they have had in view for some time to be located on the East River, between Thirty-eighth and Thirtieth streets. It will be recalled that this concern pur-

chased this site about 18 months ago, intending then to erect a monster power station. Several times since then rumors have had it that the work would surely go ahead. This time our informant states that he has been informed that contracts have been let for the buildings. It is stated that specifications are being prepared for the power plant and that the Edison Company are in communication with the large boiler builders at present. Thomas Murray is now general superintendent of the Edison Company, with offices in the Duane street building. Mr. Murray stated this morning that he was saying nothing for publication.

Some weeks since we alluded in this column to the proposed new machinery shops which were to be erected by the American Steel Casting Company of Chester, Pa., and the Reading Iron Company of Reading, Pa. We are now officially informed that both of these concerns have contracted for the buildings with the Riter-Conley Mfg. Company of 39-41 Cortlandt street, this city, and Pittsburgh. The cost of these buildings, which are to be of steel construction, is said to be \$150,000 in the case of the former and \$50,000 for the latter. The Riter-Conley Mfg. Company have also been awarded a contract for a 78 x 115 feet steel tunnel house from the Cuban Electric Company.

The Singer Sewing Machine Works are preparing for an addition to their plant at Elizabethport, N. J. It is said that the addition will be to the machine shop and will add principally to the milling department. That the project is not a small one is evident by the fact that 1200 persons will be required to operate the new section of the shop. Superintendent Miller has the operations in charge.

A 300 feet addition is being built to the plant of the Babcock & Wilcox Boiler Company at Elizabeth, N. J. This work, it is said, is but the beginning of a general rebuilding of the great B. & W. plant.

V. A. Kashevnikoff, chief engineer of the mechanical department of the Chinese Eastern Railway, sailed for Europe on the steamer "Majestic" to-day. During his three months' stay in this country he has purchased considerable machinery, as we have previously noted in these columns. As was the case before Mr. Kashevnikoff's visit to this country, the purchasing for the Chinese Eastern Railway will be conducted by the M. S. Friede Company, 320 Broadway. Mr. Friede returned to this country on Monday last from a three months' trip to Manchuria. Mr. Kashevnikoff was here to purchase for the road during Mr. Friede's absence.

Another step has been taken by the International Pump Company toward the concentration of all the New York offices into that which has for some time been occupied by Henry R. Worthington, at 120 Liberty street.

The office and wareroom of the Deane Steam Pump Company, formerly at 74 Cortlandt street, has been abandoned and the business of the Deane Company is now transacted at 120 Liberty street. It is said that the offices of the Snow and the Blake-Knowles concerns will also be merged into that at 120 Liberty street as soon as the International Company fulfill the obligations made by the individual companies before the consolidation.

Thomas H. Lewis, who was formerly the New York manager of the Laidlaw-Dunn-Gordon Company, has opened an independent steam pump business at the old stand, 116 Liberty street.

Westinghouse, Church, Kerr & Co., 20 Cortlandt street, have just received orders from the Florida East Coast Hotel Company for five 90 horse-power gasoline engines, to be installed in the various hotels controlled by this company. There are at present three of these engines installed in hotels controlled by the Florida East Coast system.

We are advised of an extensive shipment of Pond tools to the Honolulu Iron Works, Honolulu, H. I.

F. H. Bryant, formerly with the B. F. Sturtevant Company, is now representing the Boston Blower Company in New York, with headquarters at 39 Cortlandt street.

**Two Large Hydraulic Dredging Boats.**—The Maryland Steel Company of Sparrow's Point, Md., have just closed a very interesting contract. Some time since Andrew Onderdonck secured the contract for dredging the new East Channel in New York Harbor. He will use two dredging boats, designed by C. Bailey, his engineer. These are hydraulic dredges of the general type of those used in the Mersey, but very much larger and embodying a number of special features invented by Mr. Bailey. The two ships will be 320 feet long, 48 feet beam and 26 feet depth. They will have 14 hoppers, with a capacity of 3500 cubic yards, which it will take 20 to 30 minutes to fill. The boats will be double ended, and will have a speed of about 12 miles per hour. They will carry the silt to sea. The contract amounts to about \$900,000.

## The Philadelphia Machinery Market.

Office of *The Iron Age*, Forrest Building, {  
PHILADELPHIA, PA., July 25, 1899. }

The condition of the market continues about as last reported, inquiries plentiful and orders numerous. There was a little lull at the opening of the month, due, no doubt, to the holidays, but recovery was rapid. Foreign inquiries appear to be much more numerous than before, and where terms of deliveries can be met it is not hard to secure the orders. The demand from abroad is wide, and covers mining, smelting, textile, paper, leather, cement grinding, ice, refrigerating, testing, power transmission, hoisting and conveying and laundry machinery, machine tools and shop appliances and machinery of almost every kind. Prices on standard machinery have advanced but little, which is somewhat surprising when the heavy advance made in the material market is taken into consideration. The disposition to give to consumers the advantages secured by stocks bought at low prices is largely in evidence in the market. At a recent letting of contracts for factory equipment one of the contracts was taken at an exceedingly low figure; indeed, it is doubtful whether the material alone could to-day be bought for much less than the contract price. On heavy machine tools of a special character prices are much better than on smaller tools. Builders appear to have plenty of large work in hand, and are not really anxious to crowd up with much more of it. They seem to be more concerned about the bookings of small and medium sized tools, which tools are run through in batches as opportunity offers. Deliveries, as a rule, are being made promptly in accord with contracts, but that is saying little. There is hardly any stock in hand anywhere, and deliveries in consequence are based upon the condition of builders' shops, and run anywhere from one to three months. On larger tools the deliveries are much more extended, four to 12 months being the range.

The difficulty in obtaining material is hampering business considerably. A large foreign inquiry for power transmission equipment was turned down recently because the material required for same could not be obtained with anything like reasonable promptness. The prospect for a betterment of this condition in the near future is not at all bright.

The foundries able to take care of machinery castings are all crowded with work, and many complaints are heard in regard to the time now required for the turning out of castings. Prices of castings have advanced considerably, but only in line with the increased cost of pig iron.

The New York Shipbuilding Company are making some large purchases of tools and machinery for the new plant they are building in Camden, N. J. Among the tools for which bids are at present being invited are, it is understood, two 60-inch lathes, 50 feet and 60 feet between centers, shears, punches and boring mills. The company are desirous of completing their works at the earliest possible date, and no time is being lost in proceeding with the work. Piles are being driven for their wharves, and the location is already attracting considerable attention from passers on the river. On such tools and appliances as can be utilized in the construction of the works short deliveries are specified.

The organization of the Niles-Bement-Pond Company is reported to be practically completed, and the transfer of Bement, Miles & Co.'s works and those of the Philadelphia Engineering Works will take place on August 1. In regard to the Bement-Miles plant, it is understood that the Bement Brothers will retire from the business altogether, but that Mr. Miles will continue to be connected with the same. Nothing definite is known as to changes to be made at the Philadelphia Engineering Works plant, excepting that the building of cranes and pneumatic tools and appliances at these works is to be something of a specialty with the new company.

At the works of Bement, Miles & Co. the heavy influx of business continues, and every department is exceedingly active.

Wm. Sellers & Co., Incorporated, have booked some nice orders during the month, including one for a 72-inch lathe of the gun forming type, three plate planers and several cranes, from the New York Shipbuilding Company. The plate planers, it is understood, will be the largest of their type ever built in this country. The sub-

way buildings of the concern are about completed, and it is expected that work on their contemplated new building will shortly be commenced.

Lucas & Gliem have taken some nice orders during the month, among them one from Landis Bros., Waynesboro, Pa., for a horizontal floor boring machine; another from the Wharton Railroad Switch Company for a large saw grinder; another for a large steel foundry saw from a concern prominent in the steel castings trade, and another for a big saw grinder to go to Manchuria, China. The firm have increased the capacity of their works considerably, and are making good deliveries of machines of ordinary character.

The Harrison Safety Boiler Works are full of work and every department crowded. They have numbers of orders in hand for Cochrane feed water heaters, one order covering a heater having a capacity of 10,000 horsepower, the largest ever built. In the boiler department they are very busy. Among their recent shipments they mention one to China, covering a 50 horse-power boiler.

The Geo. V. Cresson Company report orders quite plentiful at their works. Among recent shipments they mention one covering a quantity of pulleys and shafting to Holland, three shipments of transmission machinery to Mexico, a large set of crushing rolls to the Lehigh Portland Cement Company, Allentown, Pa., and a large outfit for gold mining to Boise City, Idaho.

Israel H. Johnson, Jr., & Co., lathe builders, have booked some nice business at their works during the month, and report quite an increase in the number of inquiries received. They have just shipped a 42 x 30 foot lathe, embodying some special features, to the Lobdell Car Wheel Company, Wilmington, Del. Among the lathes in course of construction they mention two 48-inch for the Pittsburgh Steel Foundry Company, a 60-inch for the Pennsylvania Steel Company, a 30-inch for Hill, Clarke & Co., Chicago, and a 36-inch for the United States Government Ordnance shop, at Washington, D. C.

The American Pulley Company report a good business at their works, quite a number of orders of good size having been booked during the month. Some large shipments are being got ready for Denmark, Germany, and Great Britain, and there are orders in hand for other foreign points. Work has been commenced on the company's new building at Nicetown, and some of the steel structural material is already on the ground. New machinery for the plant is being purchased, and specifications have been prepared for a large hydraulic press for turning out pulleys 42 inches in diameter. Bids for the building of this press are being invited.

The Philadelphia Engineering Company are running day and night at their works on orders. Several large gun carriages are approaching completion, and there is lots of other work of a heavy character in various stages of completion. Among the orders in hand is one from the Barr Pumping Engine Company, for an 18 x 36 x 36 cross compound condensing engine; another from the American Pipe Mfg. Company, for an 8 x 24 pumping engine for their Norfolk, Va., water plant, and another for an iron stack for the Newport News, Va., grain elevator, 37 inches in diameter, 170 feet high. They have orders in hand for several cranes, and are completing a 3000-pound electric crane, to be installed at the League Island Navy Yard.

Thos. H. Dallett & Co., makers of portable electric and pneumatic tools, are quite busy, and booking some nice orders. Among their orders for shipbuilding tools they mention the Newport Shipbuilding Company for a deck planing machine.

Alfred Box & Co., crane builders, are exceedingly busy, and have orders for a large number of cranes in hand. They have just secured possession of a property near to their works, and will raze the buildings at present on the same and build a new shop, which they will use as an erecting shop. The new shop will relieve their present erecting shop considerably.

The Wilbraham Baker Blower Company have a great deal of business in hand, and have of late been turning out some blowers and gas exhausters of unusually large size. Recent shipments have covered an order from South Australia for eight large blowers, and a number of smaller orders for blowers for South America and other countries. Their construction of blower appears to meet the requirements of prominent engineers, and consequently they have no difficulty in installing them in the best and most modern plants in this country and abroad.

At the Baldwin Locomotive Works the rush of business continues on a greater scale than ever before. While remarkably prompt deliveries have been made all along, purchasers are beginning to realize that anything like prompt delivery cannot in future be expected, consequently there is somewhat of a rush to place orders for next year's delivery. In general, the summer months are rather dull at these works, but this year there is no sign of a lull. Among the foreign business recently booked is an order for 13 consolidated freight locomotives.



tives for Finland. They have also an order in hand for seven Baldwin-Westinghouse electric locomotives for the Imperial Government railways of Japan, for mine use.

The Detrick & Harvey Machine Company, Baltimore, Md., are running their works 24 hours per day on orders in hand. They have recently completed some important additions to their buildings, and are occupying them to advantage. Among the orders in hand are several for open side planers as large as 72 inches, including one from the New York Shipbuilding Company.

The Philadelphia Roll & Machine Works are exceedingly busy and are running their plant at night, three nights a week. They are meeting an unusually large demand for chilled rolls and have a great many orders in hand for this class of work. In their construction department they are building three retort furnaces for 'Tatham & Bros.' lead works, and some large pulp drainers for the Geo. M. Newhall Engineering Company, Philadelphia.

The Charles Scott Spring Company are commencing the erection of their new factory to replace the one recently burned. The new building will be irregular in shape, with a frontage of 185 feet on New Market street, 130 feet on Germantown avenue, 285 feet on Hancock street and 159 feet on the rear end. The building will be of steel construction and will be pushed rapidly to completion.

The Eynon-Evans Mfg. Company, makers of brass machinery castings, injectors, valves, etc., report business very good with them. They have just completed some alterations and additions to their foundry, thereby increasing its capacity to an extent which makes theirs the largest foundry in this section devoted to machinery castings.

The J. W. Paxson Company, manufacturers of foundry supplies, are very busy on orders from foundries throughout the country. Their machinery department is particularly active and many orders from foreign as well as domestic points have been booked. They are doing a good business in cupolas, the demand for their Paxson-Colliau cupola being exceedingly active. Among the orders for these cupolas recently received are mentioned the following: Schaum & Uhlinger, Philadelphia, for a 63-inch and a 42-inch; H. B. Smith Foundry & Machine Company, Smithville, N. J., for a 49-inch; Benjamin Eastwood Company, Paterson, N. J., a 63-inch; Abram Cox Stove Company, Philadelphia, a 76-inch; Moore & White Company, a 67-inch; Roberts Machine Company, Collegeville, Pa., a 35-inch; Ingersoll-Sergeant Drill Company, Easton, Pa., a 76-inch; New Brunswick Foundry & Machine Company, New Brunswick, N. J., a 49-inch; Bethlehem Steel Company, South Bethlehem, Pa., a 76-inch; United States Navy Yard, Norfolk, Va., a 63-inch and a 49-inch; H. W. Butterworth & Son, Philadelphia, a 54½-inch; Vacuum Refrigerator Company, New Brunswick, N. J., a 49-inch; Hendey Machine Company, Torrington, Conn., a 54½-inch; Peninsular Foundry Company, Newport News, Va., a 35-inch; Philadelphia Roll & Machine Company, a 49-inch; Pennsylvania Industrial Reformatory, Huntingdon, Pa., a 32-inch; Lappin Brake Shoe Company, Bloomfield, N. J., a 67-inch; David S. Cresswell, Philadelphia, a 76-inch, and P. M. Sharpless, West Chester, Pa., a 42-inch.

A large six-story building, to be used mainly for the publication of a newspaper, is to be erected by Thomas B. Wanamaker at Broad and Sansom streets, on the site of the old Chambers-Wylie Presbyterian Church. Plans are now under way and the demolition of the old church will be commenced, it is expected, next month. A good deal of machinery will be required for the new building.

A contract has been awarded for the erection of an eight-story building at the southwest corner of Juniper and Cherry streets for Geo. T. Lasher. The building will be 60 x 100 feet and cost in the neighborhood of \$60,000. A good deal of machinery will be purchased for this building.

A new glue manufacturing plant is to be erected at Ontario and Brant streets for A. Berg & Co. The building will be 60 x 155 feet, three stories high.

J. & J. Dobson are building a new carpet mill at Stenton avenue and Godfrey street, Germantown. It will be brick and stone construction and cost about \$12,000.

Estimates are being asked for the construction of a power station and car barn for the Philadelphia, Morton & Swarthmore Street Railway Company, at Folsom, Delaware County. The buildings include an engine house about 39 x 73 feet, a boiler house 40 x 50 feet and a car barn 49 x 200 feet.

Estimates are being asked for the erection of the buildings comprising the new plant of the Oldham Upholstery Mills, at the corner of Boudinot street and Allegheny avenue. The main building will be 113 x 50 feet, three stories high.

The Pennsylvania Machine Company, Incorporated, Philadelphia, have been succeeded by the Pennsylvania Machinery Company, who have removed the office of

the concern to the Bourse Building, where the business will be managed by A. A. McCray, formerly connected with the late concern. They have just received an order from the St. Petersburg Electric Light & Power Company, St. Petersburg, Fla., for a compound condensing engine, boilers, pumps, &c., for the lighting of the town. They also have an order for the tool equipment for the Camden Manual Training School, Camden, N. J., and another for a large deep well pump, direct connected engine and dynamo for the Coplay Cement Works, Coplay, Pa.

J. W. Cregar, agent for several machine tool builders, with offices in the Bourse, has accepted the New York agency of the Pratt & Whitney Company, with a territory embracing Pennsylvania, New Jersey, Delaware, Maryland and the South, and Eastern Ohio. Mr. Cregar's agency business in Philadelphia will be continued under the name of the J. W. Cregar Sales Agency, and will be managed by L. E. Beaman, a son of Mr. Beaman of Beaman & Smith, Providence, R. I.

## The Cincinnati Machinery Market.

Office of *The Iron Age*, Pickering Building, }  
CINCINNATI, OHIO, July 22, 1899. }

The most absorbing question in machine tool circles continues to be the problem of foreign business. As mentioned in *The Iron Age* in previous letters, orders from abroad in June averaged considerably lighter than during the early part of the year. A few shops report foreign business as on the increase, and some say that they have noticed no difference in the past two months. Quite a number, however, say that there has been a decided slackening up in orders from across the waters, and if it were not for the fact that domestic business has correspondingly increased work in the shops would be a little bit slack. There are several ways of accounting for this. Some of the firms who report a material falling off think that it is due to the fact that foreign agents ordered very heavily in the early part of the year, with the expectation of covering regular needs and anticipating trouble in placing orders later sent them in ahead of time. A prominent machine-tool maker, now traveling in Europe, writes back that from a careful survey of the situation he is satisfied that the boom period has passed its high and business will not be quite so brisk as it has been. Last year it was estimated that between 50 and 75 per cent. of the output of the Cincinnati shops went abroad. This year the estimates place it from 40 to 60 per cent. There is, however, a remarkable increase in domestic trade, which at present more than compensates for any falling off there may be in export business. All shops making lathes and planers are especially much behind in their orders, and some are reported to have booked orders which will take them the better part of two years to complete. The fact that competition is not nearly so sharp as it was a few years ago has led to a reign of better prices. Discounts are much less than formerly, and manufacturers in every way more independent.

Among the unfortunate occurrences of the month was the burning of a large portion of the Addyston Pipe & Steel Company's plant, at Addyston, Ohio, last week. The loss to the company is between \$50,000 to \$75,000, which is, however, fully covered by insurance. It is fortunate at this time that the company have the old Newport plant to fall back on, and the 200 and odd men who were thrown out of work by the fire have been transferred to the Newport works, and some also to the pipe works, at Columbus, Ohio, where the orders of the company can be filled until the buildings damaged by the fire can be repaired. A large force of men have been put to work, and within the next 60 days the plant will be again in position to continue.

Mention was made in *The Iron Age* some months back of the fact that the International Pump Company would enlarge the Laidlaw-Dunn-Gordon plant near this city. It is now definitely understood that the work of installing some \$50,000 to \$60,000 of new machinery will be commenced at an early date. The company have recently taken some very large orders, among which is one for about \$65,000 worth of pumping and air compressing machinery for a large chemical works in the northern part of Ohio.

One of the largest things in architectural work contemplated in this city is the erection of a 17-story steel building by the Union Savings Bank & Trust Company, on the northwest corner of Fourth and Walnut streets. A large amount of material will be used in this building, which will be equipped with the finest safe deposit vaults in the West. The Hall Safe & Lock Company of this city have taken the contract for the door to the vaults, at a cost of about \$12,000. It is understood that this door will weigh about 17 tons, be about 8 feet in diameter and over 1 foot in thickness. It will be equipped with 24 3-inch bolts. The vaults themselves are

being built by the Carnegie Company of Pittsburgh, out of Harveyized steel.

Rahn & Meyer, who are among the youngest firms engaged in the manufacture of machine tools in this city, and who, since the date of their starting in business three years ago, have devoted themselves exclusively to the manufacture of 16 and 18 inch lathes, are just on the point of removing to their new shop on Spring Grove avenue, this city. The new building, in striking contrast to the dark and limited quarters in which they have built up their business, is 50 x 160 feet in dimensions, two stories in height. It is being thoroughly equipped, and is among the best lighted buildings of its class in this city. They report business excellent, and say that the orders now on their books, and the rate at which new orders are coming in, both from abroad and domestic sources, entirely justifies them in the way in which they are expanding their productive capacity. They will be in running order in their new quarters some time during the next three weeks.

The Cincinnati Planer Company, who have been making a specialty of three sizes of planers—namely, 30, 33 and 36 inch, are finding business exceedingly good just at present. They have been running now only a few months, and have already shipped 24 complete machines. Their present capacity is about eight machines per month. Among the recent orders which have been booked, and which show that their tools are giving excellent satisfaction, was a telegraphic one from the Baldwin Locomotive Works for several of their planers. The Baldwin Company have had one of their planers in operation for several weeks, and the last order is therefore very gratifying to the members of the Cincinnati Planer Company. They are also building a 42-inch planer for the Fosdick & Holloway Machine Tool Company, and one large planer for the Morgan Engine Works. They have recently booked orders for about 15 standard sizes to go to Denmark and Sweden.

The Cincinnati Machine Tool Company, who are one of the new companies devoting their attention to the manufacture of radial drills, report orders for about 300 tools now on their books. They have got out on entire new set of patterns. They will make up to 40-inch drills. They have only been in operation a few months, and yet already the problem of increasing the size of their shop is upon them.

The Cincinnati Shaper Company, who are operating in the old G. A. Gray shops on Sycamore street, are making an excellent tool, which is selling well. Duplicate orders are coming in from first customers. They report business excellent for a new company, and prospects as good as could be expected.

It will be noticed that the majority of the new concerns started in this city are placing the name of "Cincinnati" in prominence in the style of the company. The Cincinnati Milling Machine Company, who, by the way, were the pioneers in this particular, and who have done about as much as any other concern to give Cincinnati machine tools a reputation for excellence, report business all that could be desired. They have their books full of orders, and have recently taken some large foreign and domestic orders. Pending the erection of their new office building, they have recently removed part of their office to a building on Cook street. Work on the new addition to the plant will commence shortly, and by November 1 the offices will probably be established on the second floor of the building which is to be constructed.

Dietz, Schumacher & Boye have recently enlarged their shop building, so as to almost double their former capacity. Among the new tools which they have put in are two planers, one of them 30 x 48, and the other one 30 x 30. Among the lathes just being finished up in the shop was noticed one 18 x 26 inch, 40 feet bed with double spindle, for shipment to San Francisco. About ten other lathes of standard sizes were just about ready to leave the shop. The firm make no small lathe, and their capacity at present is about 30 per month, which as soon as the new portion of the shop is in good running order, will be increased to 50.

Dreses, Mueller & Co. report an excellent demand for upright drills and also a fine run of orders, both at home and abroad, for lathes. Among the recent large orders received by the firm one from New York was for 12 turret lathes.

The G. A. Gray Company are finding the demand for their planers almost beyond their ability to supply. The new shops are being taxed to the uttermost to keep abreast with their trade. G. A. Gray, president of the company, is at present traveling in Europe for business and pleasure.

One of the finest sights seen by the representative of *The Iron Age* in some time was the appearance of the first floor of the Bradford Mill Company shop. At the time of a recent visit to the plant, there were 55 lathes in sight, almost completed and ready for shipment. This comprised the entire product of the shop for about 30 days. The company confine themselves exclusively to

the production of 16 to 36 inch lathes, and the entire force is put to work on one class of tools at a time, and when that lot is out of the way work is then commenced on another class. In this way the very best results are being obtained, and it is doubtful if there is any other shop in this city which gets a greater amount of work according to floor space than is obtained in this one.

Among the very important orders taken by the American Tool Works Company is one which has been recently booked for a large number of different sorts of machine tools for use in some new shops which are building near Boston, Mass. The order comes to the company through their Boston agents, Chandler & Farquhar, and is one of the largest which has been taken by the company in recent months. In the lathe department there is now building a 52-inch lathe with 33 feet bed, for shipment to San Francisco. This company are one of the few who report foreign trade better than it has been in recent months.

Smith & Mills, who make a specialty of shapers, report a very good run of orders, and appear to be entirely satisfied with the present condition as well as the future outlook. At present Albert S. Smith of the firm is spending a vacation at Los Angeles, Cal.

Out at the shops of the Cincinnati Radial Drill Company in Fairmount, everything presents the appearance of prosperity. The company report business all that could be desired, and say if they had a greater capacity it would be pushed to the uttermost to carry the orders that they are now receiving. Some weeks ago Anton Mill, secretary of the company, had the misfortune to fall and break his leg. He is now considerably better and able to sit up in a chair at his home, but it will be several weeks yet before he is able to attend to business.

The new shops of the Fosdick & Holloway Machine Tool Company in Cumminsville, this city, are fast approaching completion. At present the company occupy a portion of the American Tool Works' building. The new shops will be ready for occupancy about September 1, at which time the company will take possession, starting with about 130 hands.

The Lane & Bodley Company have probably been the most talked of people in their line in this section of the country for some time. The fact that they have a contract for pumping machinery for the new Cincinnati Water Works amounting to \$500,000, and the fact that this contract has recently been through the courts, has given the company a great deal of prominence. The courts decided that the contract was valid, and then the newspapers attacked the company, and declared that they had no intention of filling the contract. The Water Works Commissioners have recently made a thorough investigation of the matter and announce that they are perfectly satisfied as to the intentions of the Lane & Bodley Company, and say the contract will undoubtedly be carried out according to specifications. Among the other big contracts which this company have on their books is one for a very large amount of pumping machinery for the Allegheny City Water Works.

The Knecht Brothers Company of Harrison avenue, this city, who are making a specialty of radial drills, report that business is so uniformly good that there is nothing special to say in regard to it. The company are sold ahead for a considerable period of time, and anticipate no trouble whatever in the securing of new business.

Greaves & Klusman are progressing with their new shops, and from present appearances it would seem as though they would be safely installed therein in about 60 days. With the added facilities the firm will have no trouble in taking care of the orders, which at present are piling up on them in a way which is rather trying in their present limited quarters.

The Barker & Chard Machine Tool Company, who had the misfortune to be burned out a few weeks ago, are in a state of suspense at present awaiting the completion of the repairs on the building in which they are located. The insurance companies settled with them for their damage, and the company will be ready to start up again in about 30 days. They were just getting very nicely started in the building, and had a big lot of orders on which they were at work at the time of the fire.

The J. A. Fay & Egan Company are another concern who have recently had a taste of fire. A fire broke out in an area between their warehouse and the old shop building, which for a time was so threatening as to call out a large portion of the Cincinnati fire department. The fire was fortunately extinguished with a loss of about \$2500. The damage all happened in the warehouse building, and did not interfere in any degree with their manufacturing processes. They are very busy, and are constantly adding new machines to their plant. Among the recent tools put in was a 60-inch planer. They are also getting out an average of about two new machines each month. They report good machinists quite scarce, and say that trade is better now than it has been at any time in the past five years, being almost if not fully equal to what it was in 1893.



# HARDWARE.

## Condition of Trade.

**T**HERE is something of a falling off in the demand owing to the effect of the summer season. Business on the whole continues remarkably good, and in some departments is unusually active. In heavy goods most manufacturers are seriously behind their orders, and are suffering a good deal of embarrassment on account of difficulty in getting raw material. This feature of the situation has not improved, and is having its effect also on many lines of Shelf and Miscellaneous Goods. Prices in manufactured products continue to advance and the market has a very strong tone. There is no doubt that manufacturers generally, there being some notable exceptions, have been conservative in the matter of advances, and are reluctant to name higher prices than are really necessary, in view of the increased cost of the goods. Some leading houses are still selling at former prices notwithstanding the advance in material and in some cases in wages. Travelers are going out quite generally, induced by the ease with which sales can be effected, though in some important lines the manufacturers are not soliciting business, content to let it come to them and finding that they have all they can do to take care of demands thus made upon them. The heavy advances which have been made in prices give jobbers an opportunity to realize large profits, of which to a good extent they are taking advantage. It should, however, be borne in mind that in the present condition of things the jobbers' prices are those which make the market for the retail trade, and in nearly all lines leading jobbing houses are making quotations more or less lower than the manufacturers' regularly announced prices. The general firmness of the market does not make it necessary for them to make large concessions in price, and in some cases, as often happens, under the exhilaration of a rising market buyers are not as careful as they should be about purchasing at the most favorable terms obtainable. In the present condition of things care in this regard will be found desirable and advantageous. The difficulty in obtaining some lines of goods, in view of the scarcity, is also a feature of the situation, which in some cases makes the matter of price of secondary importance. It will be seen that still further advances are announced in the following columns.

### Chicago.

(By Telegraph.)

The month of July is closing a glorious record. The volume of business is running so large that the month is likely to prove one of the best, if not the best, of the year. Sales are far in excess of those of last July. The percentage of increase over that month will probably show the heaviest of any comparison made this year between corresponding months. A noteworthy feature of current business is the frequent purchase of full Hardware stocks by men who are starting upon new ventures. The high prices now reached on everything entering into Hardware stocks is by no means checking the dis-

position to engage in business. It is further remarkable that jobbers are continually replenishing their stocks at the high prices ruling and are disposed to buy rather freely on account of the heavy demand, taking chances on the danger of reaction. Great confidence is felt in the maintenance of prices, however, more likelihood being feared of higher prices than the possibility of an early return to lower rates. The most conspicuous advance of the week was on Carriage Bolts, Machine Bolts and Lag Screws, which were marked up 10 per cent. Another advance is coming in Tinware, which will be announced in the course of a week or so, and will probably be 10 per cent. It is expected that sheets will be still higher in the near future. The demand for Heavy Hardware continues extremely active, with jobbers unable to keep up assortments, even when receiving fairly prompt shipments from mills. The demand is running apparently in excess of the current supply.

### St. Louis.

(By Telegraph.)

The volume of sales is reported by the trade and manufacturers as far in excess of last year. Our inquiries have not met with any expressions of discouragement whatever. Higher prices naturally take the edge off some would be buyers, but consumers do not long deprive themselves of necessities or even luxuries, and come into the market sooner or later. While dealers may wisely keep an eye on the quantity of purchases they now make, it is not to be supposed that they will shut down on ordering. Finding fault with high prices does no good nor does it bear the market. Getting stocks into shape is more profitable, and will induce greater sales than will empty shelves. It is an absolute fact that jobbers' present sales are unusually good, and this is borne out by activity seen in the packing departments, not merely by pen and ink sketches. We note 10 per cent. advance this week on Carriage Bolts, Lag Screws and Machine Bolts, which makes an increase of over 100 per cent. since January 1. As affecting prices on all Hardware of Iron, we mention to-day price of \$19.75 against December 29, 1898, quotation of \$11, St. Louis, on Southern No. 1 Foundry Iron, showing an advance of over 80 per cent. Prices on Coil and Log Chain have been advanced ¼ cent per pound. Minor items have been moved up in price and confirm makers' conviction that raw material has not yet reached its top price. August 5 to 11, inclusive, merchants' excursion rates will apply to St. Louis from outside points, and intending dealers may be given the benefit of low rates by application to any jobber.

## Notes on Prices.

**Wire Nails.**—The advance announced in our last issue has gone into effect and is held firmly by the manufacturers. Jobbers are in many cases making a corresponding advance, but as a rule are not following quite closely, being disposed in many cases to give a concession to valued customers. Quotations are as follows, f.o.b. Pittsburgh, 30 days net:

To jobbers in carload lots.....	\$2.50
To " " in less than carload lots.....	2.52½
To retailers in carload lots.....	2.65
To " " in less than carload lots.....	2.75

The increase in the differential between retailers and jobbers enables the jobbers who purchase at net cash prices to make a cash discount to retailers as heretofore and realize the same profit as formerly.

An advance was made 20th inst. in Miscellaneous Wire

Nails by the adoption of a new list, which in many sizes is higher than the old one and represents on the whole a substantial advance in price. The new list, which is printed below, is subject to the same discount as the former one, the regularly announced discount to the small trade being 80 per cent. The list is as follows:

## MISCELLANEOUS WIRE NAILS.

## Prices per Pound for 1, 5 and 10 Pound Packages.

No.	Per lb.	No.	Per lb.
10.....	\$1.00	12 to 7.....	\$0.30
19.....	1.25	13.....	.31
20.....	1.25	14.....	.32
21.....	1.55	15.....	.32
22.....	1.80	16.....	.35
18.....	.80	17.....	.40
19.....	.90	18.....	.43
20.....	1.00	19.....	.53
21.....	1.25	12 to 7.....	.29
22.....	1.55	13.....	.30
16 to 14.....	.55	14.....	.31
17.....	.60	15.....	.32
18.....	.65	16.....	.34
19.....	.75	17.....	.39
20.....	.85	13 to 4.....	.29
21.....	1.00	14.....	.30
22.....	1.25	15.....	.31
14 to 12.....	.43	16.....	.38
15.....	.45	17.....	.38
16.....	.50	13 to 4.....	.28
17.....	.52	14.....	.29
18.....	.58	15.....	.30
19.....	.65	16.....	.32
20.....	.75	17.....	.38
21.....	.85	10 to 3.....	.27
22.....	1.10	11.....	.28
12 to 10.....	.36	12.....	.38
13.....	.38	13.....	.28
14.....	.38	14.....	.29
15.....	.42	15.....	.30
16.....	.45	16.....	.35
17.....	.46	10 to 3.....	.27
18.....	.52	11.....	.28
19.....	.60	12.....	.28
20.....	.70	13.....	.28
21.....	.85	14.....	.29
12 to 8.....	.38	10 to 3.....	.26
13.....	.34	11.....	.27
14.....	.35	12.....	.27
15.....	.36	13.....	.28
16.....	.39	10 to 3.....	.26
17.....	.43	11.....	.27
18.....	.45	12.....	.27
19.....	.56	13.....	.27
20.....	.67	10 to 3.....	.25
12 to 7.....	.30	11.....	.26
13.....	.31	12.....	.27
14.....	.32	10 to 3.....	.25
15.....	.33	11.....	.26
16.....	.36	12.....	.27
17.....	.40	10 to 3.....	.25
18.....	.43	11.....	.26
19.....	.53	10 to 3.....	.25
20.....	.64	11.....	.26

## List Extras.

Add to list—  
 4 cents per pound for  $\frac{1}{2}$ -pound paper boxes.  
 8 " " " " " " " "  
 2 " " " " barbing  
 2 " " " " annealing  
 2 " for Cone Heads, Special Heads and Headless.  
 2 " " Needle Points and Special Points.

For Nails combining several specialties, add as above for each.

For sizes not appearing on the list, use the list prices for the desired gauge in the nearest shorter length.

Nails heavier than listed at special net prices, according to quantity.

Tinned or Galvanized Nails at special prices.

## Rebates from List Prices.

Rebate for 25 and 50 pound boxes, deduct from list 1 cent per pound.

Rebate for Nails in 100-pound kegs, 2 cents per pound.

**New York.**—Trade is fair, but not heavy, and is characterized by good tone. Merchants, however, are indisposed to purchase Nails beyond their requirements. Quotations are as follows:

To retailers, carloads on dock.....\$2.75 to \$2.80  
 To " less than carloads on dock..... 2.90 to 2.95  
 Small lots from store..... 2.90 to 3.00

**Chicago, by Telegraph.**—A trade of moderate proportions is reported, as might be expected at this time and following the recent sharp advance. It is regarded, however, as perfectly normal for the season by manufacturers and jobbers. Prices are continued at \$2.80, Chicago, for single carload lots and \$2.90 for small lots.

**St. Louis, by Telegraph.**—The trade has settled down to the latest advance and although no startling sales of Nails have been mentioned the business is believed to be

of a good nature. Single car lots to retailers are quoted at \$2.85, St. Louis, smaller quantities being quoted at a minimum of \$2.95, base, out of stock.

**Pittsburgh.**—Considering the season of the year there is a very fair movement in Wire Nails, jobbers reporting quite a good demand from the small trade. Many of the larger jobbers, however, have stocks of Nails, bought at lower prices than are now ruling. We quote: To jobbers in carload lots, \$2.50; to jobbers in less than carload lots, \$2.52½; to retailers in carload lots, \$2.65; to retailers in less than carload lots, \$2.75, all f.o.b. Pittsburgh; terms 30 days net, to which freight to destination should be added.

**Cut Nails.**—The Cut Nail market, which has been in expectation of higher prices since the recent advance in Wire Nails, has realized its anticipation, as on the 21st inst. an advance of 5 cents was made in the base price, quotations now being as follows, f.o.b. Pittsburgh:

To jobbers in carload lots.....\$2.15  
 To " in less than carload lots..... 2.20  
 To retailers in carload lots..... 2.20  
 To " in less than carload lots..... 2.35

**New York.**—There is only a moderate business doing in Cut Nails and quotations are as follows in accordance with the advance noted above: For carload lots on dock to the small trade, \$2.30 to \$2.35; small lots from store, \$2.50 to \$2.55.

**Chicago, by Telegraph.**—No special change is noted in the character of the Cut Nail trade, with prices on small lots continued at \$2.30.

**St. Louis, by Telegraph.**—Small lots out of stock sell at from \$2.30 to \$2.40 base, and about the regular quantity is finding sale.

**Pittsburgh.**—There is only an ordinary volume of business, demand being curtailed both by the lateness of the season and the very high prices ruling. We quote: Carloads, \$2.25; less than carloads, \$2.35, f.o.b. maker's mill, Wheeling; terms 60 days, less 2 per cent. cash ten days. For desirable orders these prices are shaded.

**Barb Wire.**—No change has taken place in the Barb Wire market since our last issue. The advance then announced is regularly maintained by the manufacturers and quotations continue as follows, f.o.b. Pittsburgh, net cash 30 days:

To jobbers in carload lots, Painted.....\$2.60  
 " " Galvanized..... 3.10  
 " " in less than carload lots, Painted..... 2.63½  
 " " Galvanized..... 3.13½  
 To retailers in carload lots, Painted..... 2.75  
 " " Galvanized..... 3.25  
 " " in less than carload lots, Painted..... 2.85  
 " " Galvanized..... 3.35

**Chicago, by Telegraph.**—The demand has been only reasonably good, owing partly to the season and partly to the recent advance in prices. Stocks, however, are so small in the hands of the distributing trade that any slight increase in the demand is immediately felt all along the line. Prices are continued at \$2.65, Chicago, for single carload lots of Plain Annealed Wire, \$2.90 for Painted Barb Wire and \$3.40 for Galvanized Barb Wire, with 10 cents per 100 pounds above these rates for small lots.

**St. Louis, by Telegraph.**—The demand is in fair volume only at the present time. To retailers single car lots are quoted at \$2.95 for Painted and smaller quantities at \$3.05. Galvanized is placed at 50 cents per 100 advance on above.

**Pittsburgh.**—The volume of business in Barb Wire is light, most of the jobbers and the small trade as well being covered at lower prices than are now ruling. There continues to be a large volume of export business, and the American Steel & Wire Company are making heavy shipments of Barb Wire to all the principal markets in the world. We quote \$2.60 for Painted in carload lots to jobbers and \$2.85 to the small trade in less than carload lots, with an advance of 50 cents for Galvanized, all f.o.b. Pittsburgh; terms net 30 days, to which freight to destination is added.

**Smooth Wire.**—The prices announced in our last report are still in force, quotations being as follows, f.o.b. Pittsburgh, 30 days net cash:

To jobbers in carload lots.....\$2.35  
 To " in less than carload lots..... 2.87½  
 To retailers in carload lots..... 2.50  
 To " in less than carload lots..... 2.60



*Pittsburgh.*—There is nothing new to report. The recent advance in prices is being firmly maintained except by jobbers, who in some cases offer slight concessions. We quote: To jobbers in carload lots, \$2.35; to jobbers in less than carload lots, \$2 37½; to retailers in carload lots, \$2.50; to retailers in less than carload lots, \$2.60, all f.o.b. Pittsburgh; terms net 30 days. The charge for galvanizing is 50 cents on sizes from Nos. 6 to 14 inclusive; on Nos. 15 and 16, 85 cents, and on Nos. 17 and 18, \$1.10.

**Coil Chain.**—Under date July 20 a further advance of  $\frac{1}{4}$  cent per pound was made in the price of Coil Chain and present quotations are as follows, net cash, f.o.b. Pittsburgh:

Cents per pound.		Cents per pound	
$\frac{1}{16}$ inch.....	8.00	$\frac{1}{8}$ inch.....	4.25
$\frac{1}{8}$ " ".....	6.25	$\frac{9}{16}$ " ".....	4.15
$\frac{3}{16}$ " ".....	5.25	and $\frac{11}{16}$ inch.....	4.05
$\frac{1}{2}$ " ".....	4.50	$\frac{13}{16}$ " ".....	4.00
$\frac{3}{4}$ " ".....	4.35	to $1\frac{1}{8}$ " inclusive.....	3.90

B. B. crane chain 1¼ cents per pound over coil chain.

B. B. B. " "  $1\frac{3}{4}$  " " " " " "

Dredge chain  $4\frac{3}{4}$  cents per pound advance over coil chain.

It is to be noted that the cash discount which has heretofore been given is withdrawn and that the terms are, as stated above, net cash. This action was taken by the Chain manufacturers because this change has been made by the mills furnishing the raw material.

**Double Pointed Tacks and Staples.**—At a meeting of the manufacturers July 20 an advance of about 10 per cent. was made in the price of Double Pointed Tacks and Staples, the present quotations on these goods being as follows:

	Discount.
	Per cent.
Double Pointed Tacks, in dozens.....	.90 and 5
“ “ “ “ bulk.....	.80
Electrician Staples.....	.80
Hoop Staples.....	.80 and 10
Pail Ears.....	.80 and 10
Blind Staples.....	.80 and 5
Bed Spring Staples.....	.80
Steel “ “.....	.80
Basket Handle Staples.....	.80
Matting Tacks.....	.80
Poultry Netting Staples.....	.80 and 10 and 10
Shade Tacks, in dozens.....	.90 and 5
“ “ “ “ bulk.....	.80
Bed Links.....	.80
Clamps.....	.80
Clinch Staples.....	.75 and 10 and 5
Wire Cloth Staples.....	.80
“ “ “ “ in papers.....	.90
Tube Staples.....	.80
Crate Hooks.....	.80
Broom Staples.....	.80
Basket Hooks.....	.80
Special Staples.....	.75 and 10 and 5

There is still a good deal of unevenness in the jobbers' prices on these goods, and in many cases lower quotations than those given above are obtainable by the retail trade.

**Tire, Stove and Sink Bolts.**—A further advance in the prices of these goods was made by the manufacturers July 20, the base discount being made 65 per cent.

**Shears.**—The National Cutlery Company, Lehigh avenue and Third street, Philadelphia, make the following quotations on their Shears:

	Discount.
	Per cent.
Full Nickeled Shears .....	60 and 10
Enameled Handles, Nickeled Blades.....	70 and 10

These goods are steel laid and fully warranted.

**Common Carriage Bolts, Machine Bolts, &c.**—The advance announced in our last issue on Carriage Bolts, Machine Bolts, &c., has been put into effect by the manufacturers, whose quotations are now as follows, with an additional 10 per cent. to large buyers:

	Discount.
	Per cent.
Common Carriage Bolts.....	50 and 10
Machine Bolts.....	.60
Bolt Ends.....	.60
Coach Screws, Gimlet Point.....	.70
Lag Screws, Cone Point.....	.70 and 5
Skein Screws.....	.70

The meeting of the manufacturers was held at Alexandria Bay and was largely attended. They united in reporting an excellent demand and in taking a hopeful view of the future of the trade.

**Nuts.**—In accordance with the advance made by the manufacturers last week as announced in *The Iron Age* quotations on Nuts are now as follows, with an additional 2-10 cent per pound off to large buyers:

	Off list.
	Cents
Hot Pressed, Square.....	5
“ “ Hexagon.....	5.40
Cold Punched, Square, Plain.....	4.80
“ “ Hexagon. “.....	4.80
“ “ Square, C. T. & R.....	4.60
“ “ Hexagon, C. T. & R.....	5.10

**Cordage.**—The demand for Rope keeps up well for the summer months. The market is not especially strong and lacks uniformity. Prices range from 8 to 8¼ cents for 7-16 inch and larger Sisal and from 9¼ to 10 cents for corresponding size of Manila. In some cases 8 cents is carload price for Sisal and 8¼ for small lots. In other instances 8¼ cents is charged for any quantity. Quotations are made by some of 9¾ cents for Manila in car lots and 10 cents for small quantities, while others name 9¾ cents for any quantity. Manufacturers as a rule hold to the higher figures in the majority of cases, while jobbers are inclined to be more liberal in prices. The following quotations fairly represent the market:

	Per pound.
	Cents.
Manila, 7-16 inch and larger.....	9½ to 10
" " 8 and 5-16 inch.....	10½ to 10¾
Sisal, 7-16 inch and larger.....	10½ to 11
" " 8 and 5-16 inch.....	8 to 8½
" " 8 and 5-16 inch.....	8½ to 8¾
" " 8 and 5-16 inch.....	9 to 9½
Lath Yarn.....	7½ to 7¾

Manila Tarred Rope, 15-thread, is quoted at 9¾ to 10 cents, as is also Manila Hay Rope, Medium. The price of Jute Rope is 6 cents.

**Glass.**—The situation in the Glass market is practically unchanged since last week. Arrangements for the formation of the new trust are not yet perfected. Just at present there is a rumor of delay in financing the combination, also that if successful but 85 per cent. of the country's capacity will be under its control. General demand throughout the country for Glass is reported good, with a scarcity of 12 x 28, 10 x 28, 20 x 28 and 20 x 32 in manufacturers' hands. Local business is dull and jobbers continue selling at former quotations of 80 and 20 per cent. discount for small lots of Glass and 85 per cent. discount for carloads. The American Window Glass Company's prices are as follows:

Districts.	A.	B.	C.	E.
5000 boxes or more.....	85 & 5	85 & 5	.....	85 & 5
Carloads.....	80 & 20	80 & 20	85	80 & 20
3000 boxes or more.....	85	85	.....	85 & 2½
1000 boxes or more.....	.....	.....	85 & 5	.....

These prices are subject to freight allowance.

**Paints and Colors.**—*White Lead*—The usual summer dullness restricts the demand for White Lead in Oil for immediate delivery. There is inquiry for fall delivery, but limited in volume. With a firm market prices remain unchanged, as follows: In lots of less than 500 pounds, 6¼ cents; in lots of 500 pounds and over 5¼ to 5½ cents.

**Oils.**—*Linseed Oil.*—Moderate demand with a steady market characterizes the Linseed Oil situation. Reports indicate a satisfactory crop of Seed, which will be made in September. Prices remain unchanged at 39 cents for City Raw in lots of five barrels or more and 40 cents in lots of less than five barrels. Western Raw is quoted at 35 cents in carload lots and at 36 to 37 cents for small lots.

**Spirits Turpentine.**—There is a limited amount of Turpentine changing hands at this point at 43 cents for Southerns and 43½ cents for machine made barrels on a firm market. Advices from Savannah indicate a firm tone at that point and that July contracts are about filled

Roe & Conover, Newark, N. J., have been incorporated under that style with a capital of \$250,000. Isaac F. Roe is president and treasurer of the corporation, and William S. Roe, secretary. The house are wholesalers and retailers of Hardware, Machinery, Mill Supplies, Plumbing and Steam Fitting Goods, &c.

### Interpretation of Contract.

REFERRING to the case alluded to in a former issue in regard to the legal and reasonable interpretation of a somewhat vague and indefinite contract, we have the following reply, in which the matter is regarded from the manufacturers' standpoint, especially in view of the carelessness with which such orders have often been accepted:

We notice the article in *The Iron Age* of July 13, "Interpretation of Contract." Your correspondent is very correct, he is entitled to all the goods he may choose to order, as his requirements are for what he can sell, which was in the dark at the time he made his open order, and the party receiving the order expected additional specifications, but neither party could tell for how much, or what quantity, at the time of making the contract.

These loose methods on the part of the manufacturers should be abandoned. They always come to the front when goods are advancing. Such terms as "We will take care of you," "Will ship in a few days," "Will supply your wants," &c., should be eliminated from a business man's vocabulary.

Get down to business and say what is to be the price. When you will ship. State point of delivery, if any, and dispense with elastic prices.

The agent that cannot sell his wares for manufacturer or jobber without "back action kinks" should be called off the road and put to work with mother earth, where he may learn that as ye sow, so shall ye reap.

MANUFACTURER.

#### Another Case.

From a well-known manufacturer we have the following statement of a case in which there was a difference of opinion between a manufacturer and his customer in regard to a contract relating to the purchase of goods. The circumstances are unusual and we submit the matter to the attention of our readers, the expression of whose judgment is invited by our correspondent:

Noticing the article in your issue of *The Iron Age* dated July 13, entitled "Interpretation of a Contract," and further references to it since brings to mind a case with which we are acquainted and would like also to lay before you for judgment. A certain manufacturer had made slight concessions for goods bought in carload lots. It so happened in the early part of the year that a customer, desirous of protecting himself against advances and at the same time uncertain as to the proportion of various sizes, etc., that would be required, made an arrangement with the manufacturer, in lieu of specifying for the complete carload of goods in definite sizes, to pay over a check to cover requisite value on account, with privilege of using that credit for goods as he might elect.

The critical point follows: The original proposition of the manufacturer read: "If you will send a definitely specified order before the 15th, or, if you prefer, a check for \$—— in payment for goods to be specified and shipped later, as you may direct, within 90 days, we will bill such goods at present price." The check came and a letter accompanying it saying, "We will endeavor to specify for the goods within 90 days as you suggest." Receipt of the check was acknowledged, same conveying this sentence, "It is understood that goods covering amount of check referred to are to be ordered forward within 90 days." We suppose the purchase was rather a larger one than the party could dispose of in that time through his regular trade. At any rate the expiration of the 90 days left a considerable balance still unspecified for. The manufacturer offered either to return the balance or continue to furnish the customer with goods at prevailing market prices, but with the special carload concession, as noted in the beginning. The customer

maintained that he was entitled to the full amount of check, figuring the goods at prices prevailing at the time payment was made.

How should this case be adjusted?

### Freight Rates in the Northwest.

THERE was a meeting of Chicago, St. Louis, Kansas City, St. Joseph, Omaha, Minneapolis and St. Paul Hardware jobbers and railroad representatives July 18, at St. Paul, to discuss the current rates from the East to Montana common points. Representatives of the Great Northern, Northern Pacific and Union Pacific railroads met the Hardwaremen, among whom were J. J. Wait, representing Hibbard, Spencer, Bartlett & Co., Chicago; James A. Warner of the Wyeth Hardware Company, St. Joseph, Mo.; W. P. Trickett, commissioner for the Kansas City Transportation Company; Albert Marshall of the Marshall, Wells Hardware Company, Duluth, and David G. Black, traffic manager for the same company; W. M. Glass of the Lee-Glass-Andreesen Hardware Company, Omaha; E. J. Moles of Janney, Semple & Co., Minneapolis; R. A. Kirk and Frank Hurty of Farwell, Ozmun, Kirk & Co., St. Paul; T. G. Walther of the C. W. Hackett Hardware Company, St. Paul; Jesse Gregg of the Nicols & Dean Company, and Secretary Townsend of the Jobbers' Union.

Mr. Wait, speaking for the visiting jobbers, said the Hardware jobbers of Chicago, St. Louis and other cities were not seeking to be placed on an equal basis with the Twin Cities. Their complaint, he said, was against the through rates from Cleveland via Duluth and the lake and rail routes. This rate is less from Cleveland to Montana points than it is from Chicago or the Missouri River to Montana. The Union Pacific has claimed the right to meet this rate and the Lake Navigation Company claim that it should not do so; that the differential between lake and rail and all rail transportation is in accordance with past agreements. Here the controversy rests, but the difference of 60 cents per 100 in favor of shipments from Cleveland is working to the disadvantage of Chicago and St. Louis jobbers, as well as against the interests of the jobbers of St. Paul, Minneapolis and Duluth. The lake and rail rate does not apply to Duluth or intermediate points. The through rate is considerably less than the combined local rates, so that the jobbers of the Twin Cities are equally interested with the Chicago and Southern jobbers.

It was suggested that the lake and rail through rate should be raised, or that the freight rate east of Chicago be lowered. To the former proposition the Twin City jobbers assented, but they objected to a reduction of freight rates east of Chicago unless there was a proportionate reduction in favor of St. Paul and Minneapolis. The railroad representatives now have the matter under advisement.

### The Philosophical Poker.

A Poker, which while rather slow, as shown by its name, could make a Grate Stir when it wished to, was at first very much hurt by the remark of an Ice Cream Freezer, to the effect that in the next world Pokers would be found only in that place where Freezers were unknown. The Poker brooded for awhile over the location of its probable future residence and then said resignedly, "Well, one thing about it is certain: I have had a most uncomfortable life of it here in this world, being as I am continually poked into hot burning coals. The change that is coming to me cannot be much for the worse."

We sometimes meet those who have had such a hard time of it in this world that they are almost ready for a change, no matter what that change may be.



## Changing the Selling Prices in a Retail Hardware Store.

*In reply to the inquiry published in our last issue for information in regard to good systems for making the selling prices of goods correspond with the cost of the goods we have received a number of communications from Hardware houses who are enterprising and systematic in their business methods. Some of these are given below. It will be observed that our correspondents have different ways of accomplishing the desired end. The recently increased cost of staple goods makes this subject one of practical importance at this time.*

### From Eastern Merchants.

A well-known house in Maine describe their method as follows:

We have stout pass books, paged, with index at end, hanging at places convenient to the stock. The names are written in ink and cost and selling price in pencil with date of change of price, thus:

*Weed's Molasses Gates  
#3  $\frac{c}{o}$  4/99*

The price figures are in cipher. The date calls attention to any necessity for revision.

### From Western Merchants.

From a Western town in which there are several merchants working in exceptional harmony we have advices of their method of revising selling prices in accordance with market changes:

A MEETING of the dealers is called whenever necessary and the question of advances is discussed and prices agreed upon.

THE PRICES thus determined are printed in duplicate on a typewriter, a copy being given to each dealer. By the understanding between the merchants a penalty is fixed for any deviation from established prices. The fact that there is such an understanding between the merchants is a secret known only to those directly concerned in it, no one outside of the membership being aware of its existence. The arrangement is referred to as working exceedingly well, the merchants being benefited and customers satisfied so long as no one buys cheaper than they do.

A CHANGE SHEET.—To illustrate the methods adopted by these merchants we give below part of a recent change sheet relating to Files and Rasps. The prices are typewritten on legal cap. Besides explaining the method in question it will be of interest as advising the trade in regard to the selling prices of this line:

July 19, 1899.

#### Files and Rasps.

Mill Bastard.		Flat Bastard.		Hand Bastard.	
Inches.	Cents.	Inches.	Cents.	Inches.	Cents.
4.....	8	4.....	10	8.....	15
6.....	10	6.....	12	10.....	22
8.....	12	8.....	15	12.....	30
9.....	14	10.....	20	14.....	40
10.....	17	12.....	25	16.....	50
12.....	22	14.....	35		
14.....	30	16.....	45		
16.....	40				
Half Round Bastard.		Round Bastard.		Square Bastard.	
6.....	20	6.....	10	6.....	12
8.....	25	8.....	12	8.....	15
10.....	30	10.....	18	10.....	25
12.....	35	12.....	25	12.....	30
14.....	45	14.....	30	14.....	40
16.....	50	16.....	40	16.....	45
Common Taper.		Slim Tapers.		Double Enders.	
3.....	6	4.....	7	7.....	10
3½.....	6	4½.....	8	8.....	12
4.....	7	5.....	9	9.....	13
4½.....	8	5½.....	10	10.....	15
5.....	9	6.....	12		
5½.....	10	7.....	13		
6.....	12	8.....	15		
7.....	13				
8.....	15				
9.....	18				
10.....	25				
		Pitt Saw.		Knife Bastard.	
		6.....	18	4.....	15
		8.....	20	6.....	25
				8.....	30

Flat Wood Rasps.		Half Round Wood Rasps.		Shoemakers' Rasps.	
10.....	35	8.....	30	6.....	25
12.....	45	10.....	40	8.....	35
14.....	60	12.....	50	10.....	40
16.....	70	14.....	60		
		16.....	90		

### A Method From Michigan.

The importance of the subject and the method by which changes are from time to time made in selling prices are described in the following communication from an enterprising house in Michigan:

The inquiry is timely and deserves the attention of all Hardware merchants who would conduct their business on a safe and profitable basis.

LOW LEVEL OF PRICES.—It is safe to say that in the downward current of prices, especially during the past ten years, many prices have been carried far below the actual worth and cost of the goods. In the face of the slow decline extending over such a long period, which has necessitated the marking down of so many articles, the advances of the past few months have been very rapid and call for a radical change, and we may say a complete readjustment of all prices.

AN EXAMPLE.—For example, take Boxwood Rules. At the present cost a marked advance in the selling price must be made, assuming that the dealer had been selling at a good margin based upon the extreme declining prices. Believing that all goods should be sold at a profit consistent with each class of stock we base our selling price on the cost of goods at market price.

OFFICE STOCK BOOK.—Fully considering all the reasons for a change in prices, the best method we know of is to keep an office stock book, which contains an up to date cost, near as possible, of all goods in stock.

CHANGE SHEETS OR CARDS.—From this book change sheets or cards are issued whenever a change in the selling price is to be made. We prefer cards as a more convenient or compact shape to file, size 4 x 6 inches, ruled across narrow way, space at top for number of card, class of goods and department, also date issued, which can be made in duplicate; one card for salesman, one to go with the goods, the other to file away in a tin box, which can be made with wire rod at top, and index. Each card can be slid on wire and found in a moment.

ADVANTAGES OF THIS SYSTEM.—While we have not this system fully in operation, from our experience thus far we are convinced that it will greatly simplify work and at same time place selling on a safe and systematic basis for all who adopt this or a similar system, enabling the dealer to promptly arrive at the proper selling price whatever the condition of prices may be.

## A. F. Shapleigh Hardware Company's Catalogue.

A. F. SHAPLEIGH HARDWARE COMPANY, St. Louis, Mo., have issued a new catalogue of Builders' Hardware, Vol. II. It is a book of 252 pages, bound in stiff cloth covers, and supersedes all former catalogues and prices in their Builders' Hardware Department. In the preparation of the book it has been the aim to classify goods in groups, as far as practicable, so that when seeking information regarding any one class of Butts, Hinges, Locks, &c., they may be found in one section or group. In view of the position which they have made and maintained as jobbers of Hardware for more than half a century with an increasing business, the company bespeak the continued patronage of the trade.

## Trade Winning Methods.

*This department will contain a description of approved methods of bringing customers to the store by means of newspaper advertising, circulars and such special expedients and methods as are found useful by enterprising and progressive Hardwaremen.*

*A cordial invitation is extended to merchants to co-operate in the effort to make it suggestive and of practical use to the trade.*

*every article in our stock will be marked down to such a figure that you will readily see that you are getting goods for less than you ever bought them. A thousand and one different articles are marked down on a cash basis. You may say this is not the thing, on*

### Business on a Cash Basis and How to Conduct it Successfully.

**F**REQUENT reference has been made in our columns, as our readers are aware, to the subject of conducting business on a cash basis, particularly in view of the growing competition of catalogue houses and department stores, with whom buying and selling for cash is a fundamental principle.

**SUCCESSFUL EXPERIMENTS.**--During the past few years many Hardware merchants have adopted this method of doing business, and while here and there, for one reason or another, the results have not been satisfactory, it is safe to say that the large majority of experimenting merchants have found the policy a wise one, and a return to the credit method not to be thought of.

**THE TENDENCY TOWARD CASH BUSINESS.**--The past year or two has witnessed an increased impetus in the movement, especially in the case of newly organized firms or on the occasion of a change in the ownership of established stores, and there is ample reason for believing that the time is not very remote when the great bulk of the Hardware retailer's business will be done for cash, the "time" merchants becoming a minority in the trade.

**COURAGE NEEDED.**--Quite a number of merchants have expressed their conviction that the system is all right, but that it will not work well with them, owing to local conditions and considerations. In some, at least, of these cases a little courage, with tact and good judgment, is the only thing needed to enable the oppressed merchant to break away in good part at least from credit sales. Many of the merchants who are to-day doing a successful cash business were beset by the same conditions, but courageously resolved that they would give the cash method a fair trial.

**AN IMPORTANT MATTER.**--The question is certainly deserving the careful attention of Hardwaremen. It may be that the adoption of the cash system may prove a solution of many difficulties, and inaugurate a better order of things.

#### A HARDWARE MERCHANT'S EXPERIENCE.

In this connection we are glad to present the experience of a house in one of the middle Western States, by whom the step was taken after mature deliberation. Early in December last they issued the following circular:

##### To Our Friends and Patrons.

*We take this method of advising that on and after Jan. 1, 1899, we will begin selling goods for Cash Only to any and all. We wish to state that this mode of doing business does in no way reflect upon your credit with us, for our past business relations together have been entirely satisfactory. The time has gone by for a merchant to demand large profits on his goods, and in selling on credit you necessarily help pay for the "other fellow" who never intends to pay. It costs us hundreds of dollars each year for a collector, postage and stationery, also an extra book-keeper. We intend giving this saving to you in the price of goods that you purchase. There can be no doubt as to the success of this plan, as we purchase in quantities and pay cash. You make money when you buy for cash, and*

*first thought, but kindly consider that if we buy for cash in quantities we can sell lower than our competitors. We will carry a full line of Hardware, Tinware, Stoves, Implements, Wagons, Wire, &c.--in fact, everything carried in an up-to-date Hardware store.*

*If you want to make money, come and see us. We thank you very kindly for past patronage and trust that you will still remain with us. Every one is looking for bargains, and we guarantee that we have them.*

*Wishing you a Merry Christmas and a Happy and Prosperous New Year, we remain*

*Yours very truly,*

#### Why the Cash Policy Was Adopted.

Some of the reasons for the adoption of the cash policy will be of interest to our readers, and we accordingly make the following extracts from a letter received from the firm. It will be observed that they had already made some successful experiments in connection with the cash sale of Saws, Axes and Wire:

This is an agricultural country, and this is the third richest county in the State. We have already been conducting some of our lines on a cash plan, and it has worked admirably.

**BARB WIRE, AXES, SAWS, &c.**--The Plain and Barbed Wire trade has been conducted by us in this manner, and it has resulted in building up a trade of five times the size of that of our predecessors in this store four years ago. We have also been running Saws and Axes on this plan, and it has proven a success. Of course, in these lines, we have made somewhat closer prices, but it has enabled us to move a much larger quantity of goods, and consequently we have made more money on the lines mentioned, and the people to whom we have sold for cash think a great deal more of us.

**AGGRESSIVE METHODS.**--We shall, on January 1, adopt the plan entire and in a more aggressive manner. We shall mark every article in our house down correspondingly, and we have also planned to reach out over about 20 counties for business on this plan just on the same principle that Montgomery, Ward & Co., and Sears, Roebuck & Co. of Chicago do it, and by moving a slightly larger quantity of goods than we are now doing, we are enabled to purchase at jobbers' prices on nearly every line of goods which we handle.

This means 20 to 25 per cent. lower than we have been purchasing. As we make it an absolute rule to discount every bill, we keep our business in good shape at all times.

**ON OUR IMPLEMENT BUSINESS,** it will be impossible to make an absolute cash business at once, but we shall make a 10 per cent. difference in the cash and time price, which will be a very flattering inducement to pay cash, and we shall also continue to require bankable notes, which will make this department a success.

We shall continue to use the newspapers extensively, and shall also issue about 10,000 circulars each month to our trade in the surrounding counties, and print therein only actual facts, and describe only first-class goods such as farmers buy and quote low cash with the order prices.

#### Carrying on the Work.

Another letter from the firm shortly after the circular



above was sent out refers to the reception given the announcement, and supplies some further particulars as to the programme decided on by the house:

**SATISFACTORY RESULTS.**—We are more pleased with the idea as we proceed with it. We have had many responses to the circular letter mailed to all our customers, and to a man they congratulate us on the plan, and give us their good wishes.

We are also preparing, and will mail monthly to the trade in all of the surrounding counties, a sheet of goodly proportions, and each article thereon will be in season and will be quoted at spot cash prices, and will be quoted delivered and also f.o.b. here.

**DIRECT DEALINGS WITH MANUFACTURERS.**—Of course, in working this plan, it will require more goods, and this, of course, necessitates our dealing with the manufacturer direct, and with spot cash, which we are now doing, and which is getting us goods at lower figures than we have been able to obtain through the jobber.

**PUBLIC BUSINESS.**—It is very necessary in working the cash trade to take care of such accounts as city, county, township and like accounts where the money is paid by voucher, and upon presentation, and this class of trade we shall continue to sell in the usual way, but we expect no trouble from this source, as we will be compelled to spend but a very few minutes each week in getting the money for the goods.

#### The Monthly Sheet

mentioned is of large proportions, about 2 x 3 feet, and is copiously illustrated. Over 10,000 of these sheets are distributed. Prominent position is also given in the sheet to a list of articles not illustrated, on which attractively low prices are announced. In connection with the name of the house and their location, the sheet is headed with the following declaration:

On our full line we name you some exceptionally low prices for cash. We buy in quantities *for cash* and give you the benefit of these low prices *for cash*. We want your money, and you want the goods. We can save you from 25 to 100 per cent. on your purchase. Outside of the lines illustrated on this sheet, we handle a full line of Hardware and Tinware, and if you ask for prices we are sure we can save you money on anything carried in an up to date Hardware and Implement house. Our line is too large to illustrate every item and name price. The time is past when a dealer can demand any fancy prices for goods, consequently has to buy goods in large quantities to get the price. Our trade has doubled in the past two years, and to a large extent owing to our exceptionally low prices. Will be glad to have a sample order for anything you need, and should you not see anything in this folder that you require, make known your wants, and we will make you a price.

#### After a Month's Trial

of the system the firm advise us to the following effect:

So far are well pleased with the results. Although this is our dull season, our trade has run more than double of January, 1898. Some customers who were time buyers have left us, but we have gained cash customers who had never been in our place of business. The cash buyer is looking for prices, and undoubtedly will purchase where he can get the most for his money.

On Implements, Wagons, &c., we add 10 per cent. for time price and regular interest 8 per cent. per annum, and only take bankable notes, but with our low cash prices the average farmer will borrow the money and pay cash. We think that it is only a question of time until all up to date Hardware firms will adopt the cash basis.

#### Two Months Later.

"OUR CASH BUSINESS IS A SUCCESS AND WE INTEND STICKING TO IT."

### HARDWARE MERCHANTS' ADVERTISING CUTS.

To the line of advertising cuts which we have specially prepared for the use of retail hardware merchants, those shown herewith, Nos. 17 and 18, have been



No. 17. Price, 50 Cents.



No. 18.—Price, 50 Cents.

added. Any of these cuts, or others in the series, will be sent, postpaid, on receipt of price by David Williams Company, 232-238 William street, New York.

#### A MERCHANT'S EXPERIENCE.

I am at a standstill what to do in the way of advertising.

**A BURNING SUBJECT.**—Everybody harps on *advertising* as the business bringing magnet, but oh! for the man of *tried experience* who will reveal the secret. I am satisfied the thing is harder to do than it looks. I have used the newspapers, circulars, programmes, handbills, canvas signs, illuminated signs and at present am experimenting with the coupon system and personal solicitation.

**A PERIOD OF EXPERIMENTATION.**—All the above mentioned plans have been with me experimental. They may have brought some business, but if enough to pay for the outlay is a doubtful question, with the preponderance of evidence to show that they didn't.

#### Sidewalk and Window Display.

The only advertising of which I am positive I have received an adequate return is sidewalk and window display.

**PRICE TICKETS.** Price tickets play an important part in this feature and having the articles bargains—genuine bargains. To get the people into the store is, I think, the principal object of advertising, as selling the goods may be looked upon as a sequel.

**HOW IT WAS DONE.**—On one occasion I made a purchase of several dozen Galvanized Refuse Cans that would be all right at \$1 each. I marked them "Special—75 cents." Chair Bottoms that were stickers at 8 cents were put in a Clothes Basket—"Your choice, 5 cents." A lot

of Granite Ware, odds and ends, some chipped, were also placed in the Basket and went at 15 cents.

**SALE OF OTHER GOODS STIMULATED.**—I do not think a single sale was made from these sidewalk bargains that did not sell something else from the store, once the people got inside.

**A SUCCESSFUL INSIDE DISPLAY.**—An inside display I found effective was to suspend Screen Doors from hooks in the ceiling, running parallel with the shelving and in front of them. The advantage outside of the display was the labor saved in showing, as no handling at all was necessary and the goods on the shelves were not hidden.

**PATIENCE REWARDED.**—Another good advertisement, especially important in inside work, is *patience*, which—but this opens up a subject beyond the scope of the intention of the present correspondence.

#### ADVERTISING HINTS.

**WHAT CONSTITUTES GOOD ADVERTISING.**—In the first place ask yourself a few questions and don't deceive yourself in answering.

What do you call advertising?

What do you consider good advertising for the Hardware business?

Do you believe that advertising which proves effective for you will also be effective for all Hardware merchants regardless of conditions and surroundings?

Do you give this branch of your business the time and attention that it ought to have?

Does it fail to bring proper returns because you neglect it or because you are spending too little or too much money for it?

If you are spending more money than you can afford in this way where are the leaks—where can you curtail the expense without weakening the effect?

If you are investing too little money where and in what way can a little more be invested to make the whole profitable?

**FIXED RULES IMPOSSIBLE.**—No invariable rule can be laid down in any branch of advertising, but a few general principles can be applied by all advertisers to a certain degree. The merchant himself or his advertising manager must act according to his own judgment, and his judgment should be influenced by many things.

**VARIOUS CIRCUMSTANCES.**—The amount of business transacted, the exact class of goods handled, the people to whom the merchant must appeal, the mediums at his command and the relative value of these mediums all have direct and important bearing upon the policy of the advertising department. For this reason that particular sort or style of advertising which is remunerative for one merchant is not a paying investment for another. The same line of argument will not appeal to the city, the village and the country alike. Their requirements are not the same.

**LOCAL PAPERS.**—The local papers are usually the most reliable means of reaching the local public.

**CIRCULARIZING.**—Where these are insufficient a systematic and carefully executed plan of circularizing will prove effective, though this is also more expensive and therefore more difficult to operate successfully.

**PREPARING COPY.**—When once the preliminary arrangements have been made and the policy decided there are many merchants who fall over the stumbling block of careless execution. The advertising receives far too little attention. It is dashed off in a hurry at the last moment or is neglected altogether for duties seemingly more important. Many merchants find the preparation of advertising matter a difficult task, and to this fact may be traced the cause of so much procrastination in this direction. Many a man can talk exceedingly well to a customer.

**TALK IN PRINT.**—He's a good salesman in his own store, yet the moment he attempts to talk through public print he makes a failure. He should talk in print exactly as he would talk to a customer. Provided the store be a good one, the more its personality is shown through the advertising the better the advertising will be.

**DIRECTNESS.**—There should be no strain at humor, no distorted puns. Good plain English is good enough for any English speaking people, and it should be straight to the point for quick reading.

**VALUE OF DISPLAY.**—The display of advertising is important, but it is not difficult. Two or three sizes of plain type are sufficient. Too much variety in type spoils far more advertisements than too little. Your printer can help you in this matter.

**HAVE PROOFS SUBMITTED.**—Tell him what general style you want and request him to submit proofs before the advertisement is published. He generally will be glad to accommodate you if you allow him time enough in which to accomplish the work.

**IMPORTANCE OF STUDY AND REFLECTION.**—The very

simplicity of advertising work is what makes many merchants fail in its execution. Yet advertising, if it is to be successful, is not to be trifled with. It must have study and attention.

### Minnesota Retail Hardware Dealers' Mutual Fire Insurance Company.

**THE** Retail Hardware Dealers' Mutual Fire Insurance Company of Minnesota has been established at 323 Boston Block, Minneapolis, Minn. The Minnesota standard policy will be used, and the greatest liability that can be incurred by any policy holder in this company is a sum equal to and in addition to the cash premium written in his policy.

The officials of the company draw attention to the fact that mill owners, manufacturers, retail lumber dealers, brewers and farmers have successful mutual fire insurance companies, some of which pay only one-third of the old board rates. The hazard taken is only upon Hardware stocks, tools and fixtures, and on buildings containing such stocks when owned by the occupant. The maximum and minimum risks assumed are respectively \$3000 and \$500, and only members of the Northwestern Retail Hardware Association are allowed to participate. Articles of association, by-laws and prospectus with blank application will be sent on request to any who are eligible by J. W. Clark, secretary, at the above address.

### Reading Hardware Co.'s Architects' Catalogue.

**R**EADING HARDWARE COMPANY, Reading, Pa., have just issued a special architects' catalogue of fine Locks and Builders' Hardware, showing everything of a Hardware character necessary to trim a building. There are 448 pages each  $9\frac{1}{2} \times 6\frac{1}{2}$  inches. The book is handsomely bound, finely printed and very compact. The cuts throughout are all new, being made for this edition in a reduced size. On the front is a page engraving of their extensive works, followed by an alphabetical index of goods, an index of designs, of which there are 53, a numerical index of Locks and Latches, engravings showing hand of doors and both bevels, together with a list of 50 styles of finish.

In the body of the book, in connection with the cuts, is much valuable information, including measurements, details of Lock faces, spindles, key holes, &c. There is a profusion of new designs, among which are the Hampton, Berkley, Quincy, Majestic, Verdun, Roccoy, Beaumont, Gotha, Savoy, &c. The designs are grouped in schools, including Empire, Louis XIV, Louis XV, Louis XVI, Italian Renaissance, Colonial, German Renaissance, Romanesque, Gothic, Greek, Rococo, &c. The engravings are as a rule one-third size, and where a new design is shown a page is given to the various Knobs, Escutcheons, Pulls, Push Buttons, Letter Plates, &c., with descriptive type matter on the opposite page to the right. The book shows much care and ability in arrangement and reflects credit on its compiler.

#### Request for Catalogues, &c

**S**HOVER & GEHR, in the Shelf and Heavy Hardware business at Waynesboro, Pa., have dissolved partnership. J. H. Gehr continues the business at the old stand, and will value catalogues, discount sheets,

### Beck & Corbitt Iron Company's New Catalogue.

**THE** BECK & CORBITT IRON COMPANY, St. Louis, have recently issued a new catalogue, which is one of the most complete, covering the Heavy Hardware, Wagon and Carriage trade; 974 pages and a total of 4556 illustrations are contained in the volume, and a table of statistics in the book gives interesting information as to the extent of material used in its publication.



## Organizations of Retail Hardware Dealers.

*From an address by H. A. Cole, before Missouri Retail Hardware Dealers' Association.*

### Reasons for Organizing.

Among the necessities for the organization of the retail Hardware dealers are:

I. UNFRIENDLINESS IN TRADE.—The jealousy and animosity and retaliation existing to-day between dealers in the same and adjoining towns.

II. JOBBERS AND DEPARTMENT STORES.—The fact that many jobbers are putting weapons in the hands of racket stores, department stores and other demoralizing agencies of competition, who use well known brands at cut prices as baits for drawing trade on other profitable lines.

III. MANUFACTURERS AND DEPARTMENT STORES.—Because of the fact that many manufacturers of special goods which are desirable specialties in the Hardware trade allow their lines to be sold to department stores, &c., at jobbers' prices, to be held out by them at above scheme of baiting the public.

IV. ORGANIZED OPPOSITION.—Because the large centralized sources of competition that are using our lines for advertising purposes in this way represent thorough organization and system in all the departments of business activity, and against this our retail Hardware dealers represent utter lack of organization in many instances and are at a loss to know how to systematize their business and meet the competition intelligently of the above demoralizing agencies.

V. POWER OF UNITED ACTION.—Because only by wide spread organization can we win the co-operation of our jobbers and our manufacturers in bringing about these necessary reforms.

### Organization Necessary.

SENTIMENT INSUFFICIENT.—This retail organization is necessary because a sentiment does not apply in winning the co-operation of any class of trade.

FINANCIAL INTEREST.—It is financial interest only that we can count on to win co-operation, hence by widespread and thorough organization extending over the best States of the Union, with a membership loyal to the requests of our Grievance Committee, we can offer the necessary financial reasons and inducements for the co-operation of both jobber and manufacturer. Among the objects to be obtained are the following:

### Objects to be Accomplished.

RELATIONS WITH COMPETITORS.—First in importance is a spirit of co-operation and friendly competition among the Hardware dealers of the State as against animosity and retaliation. The convincing of our jobbers that when they do anything to undermine the interests of a retailer they are injuring themselves and in this way their co-operation.

ABOUT LEADERS.—By means of a national organization to offer sufficient inducement to the manufacturers of our well-known standard brands of goods, so that they will make it impossible for any class of trade to use their lines as baits to cut prices.

PRACTICAL BUSINESS QUESTIONS.—By means of our annual conventions where dealers brush up against each other and discuss the different phases of business life, such as advertising, desirable specialties, collections, extending credits, racket store competition, local organization and 100 other kindred subjects, to bring about thoroughly intelligent action on the part of our retailers in their method of meeting all of these disorganizing agencies. In fact the necessities are so great and the benefits are apparently so many one hardly knows where to begin or leave off.

A BROAD VIEW.—A great benefit to the Hardware dealers of any State will come from the widespread appreciation of the evils and mistakes and errors from which the Hardware business is to-day suffering by their discussion in State conventions. A very sick patient who has not yet called a physician knows he has something awful

bad, but is unable to locate the difficulty. That is about the shape of the Hardware dealers of a State without any organization. Every separate dealer looks at some special phase of trouble and attributes all the ills of the Hardware business as caused by his particular idea of the difficulty.

THOROUGH DISCUSSION.—Organization and the discussion of these things by many dealers brings many side lights on the case, and we are apt to arrive at a correct diagnosis and an all around view of what is the matter and of the proper way of correcting it.

HARMONY AND CO-OPERATION.—As I have emphasized at every meeting which I have had the privilege of attending, our greatest difficulty comes from the tendency of dealers to retaliate against each other. The underlying basis of this is a spirit of animosity instead of co-operation. It gives rise to suspicion and an unkind spirit in competition that often makes the business life of the parties involved anything but a source of daily pleasure, as one's life calling surely ought to be.

### Problem of Advertising.

I consider that our State associations can be of very great service to their membership by carefully studying this problem of advertising and making recommendations as to the best methods to be pursued, carefully scrutinizing every detail of advertising and the benefits to be derived therefrom. At our Iowa Association we did not appoint any committee to make recommendations along this line, but it is my judgment that a standing committee to study this great subject and make recommendations to our membership will be of inestimable value to our organization.

### What Can Be Accomplished.

Our organization of retailers can accomplish just as much for our membership as the organization of jobbers can accomplish for its membership, as the organization of manufacturers can accomplish for its membership. There is strength in co operation; there is weakness in disunion and individual effort.

JOBBERS RETAILING.—An illustration of what can be done has come up in one of the cities of Iowa within my personal knowledge. For ten years local dealers have tried to induce a certain jobber to put up cards in his window and absolutely refuse to make retail sales, but without effect.

"NO GOODS AT RETAIL."—I personally knew of a protest signed by every local Hardware retailer being presented to this jobber and turned down flat, yet it was not a month after the dealers of Iowa organized that this same jobber very gladly and loyally put up cards all over his store, *Absolutely No Goods Sold at Retail*, and he has been thoroughly loyal to the association from the start. What was the difference unless it was the moral effect of our organization?

GRIEVANCE COMMITTEE.—Our Grievance Committee has had numberless complaints to adjust and almost invariably reports success.

DEPARTMENT STORES.—We only need the co operation of about 12 States such as Missouri and Iowa, with a loyal membership who will stand by a national organization which we hope to start next year, to make it impossible for catalogue houses or department stores to purchase under the manufacturers' brand and offer at cut prices any of the staple articles of our line. Certain brands of Tools and Sporting Goods of known quality to every one are the favorite subjects used by these disorganizing houses to advertise as baits and trade winners.

NATIONAL ORGANIZATION.—With a national organization of loyal retailers to back the demand of the National Association of Hardware Jobbers, whose co-operation we can count on in this matter, it will be a very simple matter to secure the co operation of these manufacturers in absolutely preventing their goods being offered at less than the legitimate retail selling prices by any one.

### Relations with Jobbers.

ANTAGONIZING THE JOBBERS.—A mistake which we retail organizations are in danger of falling into and

which I have seen some symptoms of in meetings I have attended is the tendency of getting up a fight with and antagonizing our jobbers. This is unnecessary and will be suicidal if it occurs. The idea underlying our organization is to correct abuses and overcome wrongs that exist and threaten the standard order of business to-day.

**CLASSES OF TRADE.**—The standard order of business to-day contemplates the manufacturer, the jobber, the retailer and the consumer. The jobber is a factor whether necessary or not. There has been a great amount of discussion as to the necessity of a middle man. Remember the retailer is a middle man and any proposition that leaves out the middle man leaves out both the jobber and the retailer.

**THE RETAILER'S RIGHTS.**—We as retailers have a right to demand of our jobbers that they shall sell us the manufactured product as cheaply as we can buy it of the manufacturer, plus extra freight and other charges. The jobber, to justify his existence, must either sell the manufactured article as cheaply as the manufacturer, or he must offer sufficient other inducements, if he gets more money for the article, in the way of quick delivery, low freights, carrying stock, &c., to make it an object to buy of him. In other words, the jobber must be able to make his profit on the retailer out of his great saving on freights and in cost of selling to the retailer as against local freights and the heavy cost of selling by the hundreds of separate manufacturers he represents. His carload shipments and cash discounts and the many lines represented by one salesman enable him to do this, and not only this but the consumer has a right to demand of the retailer that he buy his goods as cheaply through the retailer as from any other source.

**A LAW OF TRADE.**—The channel of commerce that will ultimately succeed will be the one which will accomplish that result, other advantages and drawbacks being taken into consideration.

**A DANGER.**—Would it be consistent for our organization, in view of the idea underlying it, to attempt as an organization to cut the throat of the jobber? If consistent, what would be the consequences? There are millions of dollars invested in well organized equipment in the jobbing Hardware line. My judgment is that it would simply turn every one of these jobbers into a big catalogue house, and that instead of having three catalogue houses in the United States to contend with we would have about 300. I merely suggest this idea in order to point out a possible difficulty which it seems to me there is no necessity of encountering.

**CO-OPERATION OF JOBBERS.**—In our efforts to correct trade abuses I think we can consistently ask for the co-operation and friendship of our jobbers, and in fact we must have it if we would correct some of the greatest abuses from which we are suffering. Convince our jobbers that any action of theirs is injuring the legitimate retail trade, whether it be by supplying racket stores or selling to the consumer, and you can bank on a hearty co-operation and a prompt correction of the abuses as soon as the jobber is convinced. The old adage that you can lead a horse to water but cannot make him drink must be borne in mind in our dealings with both jobber and manufacturer in our attempt to correct injustice toward our business.

**WORK OF GRIEVANCE COMMITTEE.**—Our Grievance Committee must not attempt to bulldoze anybody, as I have never yet seen the American citizen that would allow himself to be bulldozed if he knew it. I regard this Grievance Committee as the most important working committee your organization will have, and its work will require the most tact and careful judgment.

**AN ILLUSTRATION.**—Here is an illustration of the way the inconsiderate greed of the jobber is rewarded when he does business without regard to the rights of some of the legitimate dealers. Three or four years ago the Hardware and Tinware jobbers of the country thought they were smart in getting grocery stores to put in Tinware departments. They were sowing the wind and now they are reaping the whirlwind, for every wholesale grocer in

the West is putting in Tinware and House Furnishing Goods to supply the demand that they so graciously created in their unwise and selfish efforts a few years ago. And not only this, but in many cases these new jobbers are selling the line without any profit to themselves in order to draw trade to their other lines.

**TROUBLESOME COMPETITION.**—Thus the Tinware jobber has not only created a large source of very mean competition for the legitimate Hardware store, but has also brought into the field the jobbing competition that will more than supply the demand of this new retail agency.

#### An Invitation to Discussion.

If the membership of our organizations are to get the full benefit they have a right to ask as a result of our annual convention every individual member must leave the modesty (and well-known bashfulness of the Hardwareman) in his old suit at home and come prepared to deliver up as public property every idea he ever had or ever heard of on each separate subject that comes up for consideration. Every one should be heard. It is give ideas as well as get ideas, and it means real unselfishness for many of you not to let others do the talking. If you want to have the best convention ever held I urge you to each take part in short, sharp talks in each discussion.

### Advice By the Old Man.

BY NORTHERN.

**B**ARTHOLOMEW, said the Old Man, I have not been in business all these years with my eyes shut. I have learned a good deal and I want you to bring luster to the family name by showing the ability to add to your father's wealth.

**A POINTER.**—Now, Bartholomew, when you telephone to ask Rubenstein the price of Saw Rods and he replies, don't say, "is that net?" Your very question will imply an answer in the affirmative. He will "catch on" at once and promptly answer, "yes." He will know instantly it is a fresh hand at buying, because no matter how low a price you get you should not give yourself away by your voice indicating you were well pleased. On the other hand you must manifest surprise and ask him if he means 10 off.

**FULL STOCK OF STAPLES.**—Then, Bartholomew, always keep well supplied with staples; don't allow yourself to be out of them. Some slow sellers you can afford to be out of, as you may not have a call once in six months, but Tenpenny Nails will be asked for two or three times in a day and be sure you always are able to supply them.

**FAVORABLE IMPRESSIONS.**—It gives people the impression that you keep a large stock and that they can always get what they want at your store.

**ABOUT COMPETITORS.**—Another thing to remember is not to leave unopened packages of goods on the sidewalk in front of the door or in a conspicuous place in the shop where your competitor or his clerk will see what new goods you are getting in and from whom you buy them. You may think this a small matter, but it does no good to give points like these away to the public.

**STAR CHAMBER SECRETS.**—Draw the lines tight and keep your mouth closed regarding your business. Regard all your affairs as sacred secrets. Do not let your right hand know what your left hand does.

**KEEP YOUR OWN COUNSEL.**—If times are good and you are making money keep the matter to yourself and do not be so vain as to boast of your good luck. If times are bad and you meet with losses it does no good to proclaim the fact broadcast. People will begin to think you are not very shrewd if you make mistakes and incur loss.

**CULTIVATE POLITENESS.**—And, Bartholomew, never forget that politeness is one of the most valuable acquisitions to your tools of business. Without it you court failure, but by its constant use you invite success. The most unlettered and coarse people are attracted by it. You will have many occasions when your temper will be sorely tried, but never allow your feelings to deter you from being polite. By so doing you will save dollars.



### Trade Items.

**W.** W. HALL of Honolulu passed through Chicago on the 18th inst. on his way home. In company with J. D. Warren of the J. D. Warren Mfg. Company, he called at our Chicago office and gave an interesting account of his trip to Eastern Hardware centers.

THE WILLIAM BASSE HARDWARE COMPANY are engaging in the Hardware business at San Antonio, Texas. They will devote themselves principally to Iron, Heavy Hardware and staple goods, and will sell at wholesale exclusively. Adolf Heusinger, Jr., who was formerly vice-president of Heusinger-Basse Hardware Company, San Antonio, is connected with the new house, and has recently visited New York and other markets in their interest.

AMONG the Special Notices will be found one over the *nom de plume* of "Show Room." This refers to a portion of the ground floor of a building situated in the heart of the Hardware district, a very desirable location. It is considered by the present occupants as particularly well suited for a line of specialties or other goods in the Hardware line.

JAS. J. MANDLEBAUM, Little Rock, Ark., president of the Southern Hardware Jobbers' Association, has appointed F. K. Spicer, formerly of Memphis, Tenn., secretary of the association, in accordance with the action taken at the last annual convention, authorizing the president to select the secretary. Mr. Spicer will report for duty August 1.

J. C. McCARTY & Co., 10 Warren street, New York, direct representatives of a number of manufacturers of Hardware and allied goods, have recently been made the selling agents for the United States, Canada and foreign markets of the following concerns: Columbia Grey Iron Company, Columbia, Pa., Toys, Novelties and Builders' Hardware Specialties, such as Hammers, Hatchets, Brackets, Draw Pulls, Barrel Bolts, Soap Dishes, Can Openers, Lid Lifters, &c.; Clark Mfg. Company, Buffalo, N. Y., Blind Hinges, Sash Pulleys, Spring Hinges, Gate Latches, Boiler Handles, Bed Fasts, Dampers and Hardware Specialties; Columbus Brass Company, Columbus, Ohio, Bathroom Fittings in nicked cast brass. This concern, in addition to a complete line in Sponge Baskets, Towel Bars, Match Safes, Coat, Hat and Robe Hooks, Lavatory Mirrors, make a number of combination articles, such as Soap and Sponge Holders, Soap, Tumbler and Tooth Brush Holders, &c. Also Baltimore Tack Company, Baltimore, Md., Tacks, Small Nails, Double Pointed Tacks, Staples, &c., in cut goods only, and Maryland Hinge Company, Baltimore, Md., Strap and T Hinges.

JOSEPH MARCOTTY, Brussels, Belgium, who deals in Steam Goods and Electrical Railway Material, likewise the representative of European mills making Structural Iron and General Steel and Iron Goods, has just issued a separate illustrated catalogue of Malleable and Cast Iron Fittings of American manufacture. The American representative of this house is O. Chan. Wells, 91 Centre street, New York.

OUR READERS will observe the advertisement in this issue of W. B. Miller & Son, Springfield, Ill., in which they call attention to their pamphlet containing copy for advertisements of retail Hardware merchants. With the general character of this advertising aid our readers are familiar from the notice given of it in *The Iron Age*, July 13.

THE wholesale Hardware house of the Sickels, Preston & Nutting Company, at Davenport, Iowa, had a little experience with fire on the 19th inst., which has been greatly exaggerated in the daily press. The fire occurred in the basement of their store, and the damages sustained were principally on Nails and such Heavy Hardware as they have duplicates of in their large warehouse, about two blocks distant. The loss is nominal. We are advised by the company that they have filled orders promptly, shipping the goods from their warehouse, and their business suffers no interruption whatever.

THE L. S. STARRETT COMPANY, Athol, Mass., announce that the demand for their Tools has been such that they have not been able during the past season to supply goods with the promptness always desired, though running their works to their fullest capacity and much of the time 13 hours a day, showing them the necessity of devoting all their room, facilities and energies exclusively to the Fine Tool business. They have therefore decided to discontinue the manufacture of Milling Cutters, &c., and have sold the stock, machinery and good-will of this department to F. J. Gay, for the past five years a partner in this branch of their business and manager of it, and E. T. Ward, who, under the firm name of Gay & Ward, will be pleased to supply manufacturers and the

trade with anything needed in the Cutter line. All bills due their Cutter department should be paid to Gay & Ward. The manufacture of Milling Cutters will be under the immediate supervision of Mr. Gay, who is especially qualified for the work, and with increased facilities the new firm solicit orders from the trade.

### Price-Lists, Circulars, &c.

THE WHITE MFG. COMPANY, Nicollet Island, Minneapolis, Minn.: Catalogue of Specialties in Wire, comprising Door Mats, Wire Washboards, Toasters, Broilers, Table Mats, Teapot and Iron Stands, &c. Their prominent specialty is the manufacture of Door Mats with names woven in them as ordered for advertising purposes.

THE THERIEN TOOL WORKS, Minneapolis, Minn.: Catalogue of Stone Cutters' Tools, comprising Hammers, Pitching Tools, Points, Chisels, Splitters, Frosting Tools, Wedges, &c. The catalogue further presents Bricklayers' Tools, Quarrymen and Contractors' Tools, Calking Tools, Blacksmiths' Supplies, &c., covering 54 pages.

### Among the Hardware Trade.

W. F. Reeves has disposed of his business, at Glen Rose, Texas, to J. W. Hendrix, who is continuing at the old stand.

Otto Biede has opened up in business at Jacksonville, Ore., carrying a line comprising Shelf Hardware, Stoves, Tinware and Agricultural Implements.

The Porter stock of Hardware, at Lansing, Mich., has been disposed of to Dunham Hardware & Implement Company, W. L. B. Dunham, proprietor.

E. L. Nettleton has sold his business, at Nampa, Idaho, to Loree & Frantz Hardware Company of Boise City, who will conduct it as a branch house.

Jolley, Washburn & Co. are successors to Jolley & Washburn, at Milton, Iowa.

The business formerly conducted by John A. Walter & Son, 196 and 198 Hudson avenue, Rochester, N. Y., is now being carried on under the style of Walter & Son. Trade is referred to as excellent.

The Fred. Kroner Hardware Company, La Crosse, Wis., were robbed of several hundred dollars' worth of Cutlery a short time since.

A. C. Stafford is successor to Lee & Stafford, at Gowanda, N. Y.

S. B. Klefer has purchased the Hardware store of Joseph Gibbs, at Palmyra, Pa. Mr. Klefer expects to make some improvements in the establishment in the fall.

The store of F. M. Watt & Co., Garland, Pa., has been destroyed by fire. Loss, \$4500; insurance, \$3500.

Knisely & Burner have succeeded the Jones Hardware Company, at Wakarusa, Ind.

Kent Hardware Company have purchased the retail Hardware, Farm Implement and Sporting Goods business of A. C. Smith, at Kent, Ohio. The store is under the management of W. B. Phillips and H. W. Vickers.

About \$35 worth of goods were stolen from the store of J. Irwin Ambler, at Lansdale, Pa., a short time since.

Walter Rogers has succeeded Richmond & Rogers in the Hardware, Stove, Tinware, Farm Implement and Heating business, at Hope Valley, R. I.

The wholesale and retail store of Edwin F. Platt, St. Joseph, Mich., was robbed of a quantity of Revolvers and Pocket Cutlery a short time since.

The business of Norris & Loring, Cedar Rapids, Iowa, has been incorporated under the style of the Norris & Loring Hardware Company. The company conduct a wholesale and retail business in Shelf Hardware, Stoves and Tinware.

Herman Holtgrewe has sold his stock of Hardware, Stoves, Agricultural Implements, &c., to Stone, Golt & Koester, who will continue at the old stand, in which they contemplate making a number of improvements.

H. B. Starr is successor to J. H. Payne, at Elgin, Ore.

Albert Bennett has closed out his Hardware business, at Eau Gallie, Fla.

Frank A. Bogart, formerly of San Francisco, Cal., has purchased the business of E. Jeffries, at Los Gatos, which he has moved to new quarters better adapted to the requirements of the trade. Mr. Bogart advises us that the stock purchased invoiced at \$8000, and he purposes doubling it.

Rice & Lyman, Davis Junction, Ill., have dissolved partnership, N. H. Lyman succeeding under his own name.

Kaker Bros. have purchased the business of L. H. Bomar, at Bridgeport, Texas.

C. G. George is successor to C. E. Freeman in the retail Hardware, Stove, Plumbing and Sporting Goods business, at Pomona, Cal.

Havron Bros. & Wood, with additional capital and increased stock, have succeeded Havron Bros., at Jasper, Tenn.

Dorchester & Rose, Geneva, N. Y., have purchased the Franklin house property, and will remodel it with a view to occupying it with their wholesale and retail Hardware, Stove, Implement and Sporting Goods business.

Sol Dewey's Hardware store, at Hay Springs, Neb., was robbed of \$50 worth of goods several weeks since.

Napoleon Poulin has purchased J. A. Ayers' stock, at Greenleaf, Kan. Mr. Poulin discounts all his bills and reports business opening up well.

Barker & Krook, Marshall, Minn., have dissolved, and Mr. Krook is continuing the business.

Hartzog & King have purchased the Hardware, Stove, Tinware and Sporting Goods stock of Owen McCarthy, Denison, Texas. The new firm will remain in the McCarthy Building for the present.

Wright Bros. have succeeded C. A. Prevy in the sale of Hardware, Stoves, Tinware, Farm Implements, Sporting Goods, &c., at Beardsley, Minn.

Avery & Broderick are successors to Guss & Broderick, at Fairfield, Neb. They contemplate enlarging their storeroom.

Mulliken & Davis, wholesale and retail dealers in Hardware, Stoves, Tinware, Crockery, &c., making a specialty of plumbing and heating work, with stores at Woodsville, N. H., and Wells River, Vt., dissolved partnership on the 1st inst. Under a new arrangement Ansel T. Davis will continue the business at Wells River, while A. F. Mulliken & Son will conduct affairs at Woodsville. The latter firm are putting up a new business block, which will be better adapted to the requirements of the trade and enable them to carry a materially larger stock than was heretofore possible.

The store of Padden & Hughes, New Richmond, Wis., was wiped out by the cyclone which passed through that place a short time since. The firm are rebuilding, and will soon be in shape for business again.

E. A. Rea has purchased the business of Nicola & Gardiner, at Wellman, Iowa.

N. T. Criss is successor to E. E. Frisbee & Co., dealers in Hardware and Agricultural Implements, at Petersburg, Neb.

Greig Bros. have purchased the stock of Henry Indra, at West Mitchell, Iowa. The new firm are occupying a building just completed. It has a 46-foot front, and is well arranged.

Messrs. Enkema and Orlebeke, formerly of Clara City, Minn., have recently opened in the Hardware, Stove, Farm Implement and Sporting Goods business at Hawick under the style of Enkema & Orlebeke.

J. H. Driesbach & Co., Tonganoxie, Kan., have commenced the erection of a new building. The structure will be of stone and brick, two stories, 100 feet long by 34 feet wide. It will be devoted to their stock of Farm Implements and Vehicles.

L. D. Adams has recently embarked in the retail line at Thompsonville, Mich., handling a line of Shelf and Heavy Hardware, Stoves, Implements, Sporting Goods, &c.

## Miscellaneous Notes.

### Bevin Bros. Mfg. Company.

The Bevin Bros. Mfg. Company, East Hampton, Conn., have largely increased their line of strapped sleigh bells, and have added a line of different patterns made from wrought steel, which is referred to as making a substantial strap at moderate cost. These bells are heavily electro-plated with copper before being either nickel or brass plated. The company have also largely increased their line of shaft and saddle chimes, and have added a number of special articles in this line, which will no doubt be appreciated by the trade. These goods are shown in an 1899 catalogue, No. 69, together with the company's regular line, with which the trade are familiar. Swiss cow bells are now being made by the company, a feature being that they are furnished tuned.

### Richardson Bicycle Pedal.

L. M. Richardson, assistant manager of the Monarch Cycle Mfg. Company, Chicago, Ill., has invented a new cycle pedal, which is about to be put on the market. A feature of the invention is the substitution of corrugated or milled metal treads to obviate the use of rubbers and plates with bolts and nuts to hold them on.

### B. M. Co. Screw Drivers.

The Bridgeport Mfg. Company, Bridgeport, Conn., have recently put on the market the B. M. Co. screw drivers in 3, 4, 5 and 6 inch sizes. They have beech wood handles, capped ferrules and flat cast steel blades thoroughly hardened and tempered. The company will be pleased to furnish samples of these goods, and call attention to the prices at which the screw drivers are offered. They also make lines of cutting and other pliers, shears, bit braces, can openers, tack claws, nail pullers, &c.

### H & H Leather Aprons.

Hull & Hoyt Company, Danbury, Conn., are manufacturing the H & H split leather apron for blacksmiths, mechanics, &c., as here illustrated. It is made from a

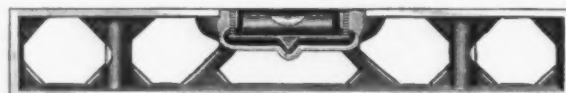


H & H Leather Aprons.

specially tanned, soft and tough leather of good uniform quality, and they are offered at a price that permits of their being marketed at a substantial profit. They can be had in a number of sizes, the details of which are given elsewhere in the advertising columns of this issue.

### Adjustable Cast Iron Level.

Standard Tool Company, Athol, Mass., are making an iron level, as here illustrated, which is offered as possessing many of the advantages of higher cost levels. In many respects it is similar to the ordinary cast iron level, the level glass, however, being inserted in a cast iron shell before being placed in the level, the shell resting on a central point. Two screws pass through the frame of the level and fit on to a projection at each end



Adjustable Cast Iron Level.

of the iron bottle receptacle, holding it securely in place, and at the same time making an adjustable level of it, as a right turn of the screws will readily adjust the glass should it by any accident get out of place. If the glass is broken a new one can be inserted and adjusted by any one. The levels can now be supplied in sizes from 6 to 24 inches inclusive.



### McPherson Paint Strainer.

Parks & Parks, Troy, N. Y., manufacturers of specialties, are making the McPherson paint strainer, here illustrated. It is referred to as adapted to all kinds of



McPherson Paint Strainer.

paint straining, and will not clog. It is especially constructed to brush out any lumps or dry pellets of ocher or mineral color from freshly mixed dry paints, and is equally good for straining kalsomine. The makers refer to it as capable of straining more paint in five minutes than workmen can in several hours by old methods.

### Automatic Extinguisher and Smokeless Burners.

Edward Miller & Co., Meriden, Conn., and 28-30 West Broadway, New York, have recently brought out an improved fount and burner, the principle of which has been

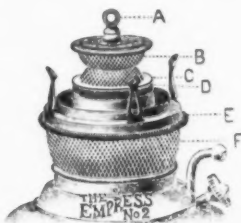


Fig. 1.—Smokeless Burner with Automatic Extinguisher.



Fig. 3.—Oil Heater Having Same Style of Burner.

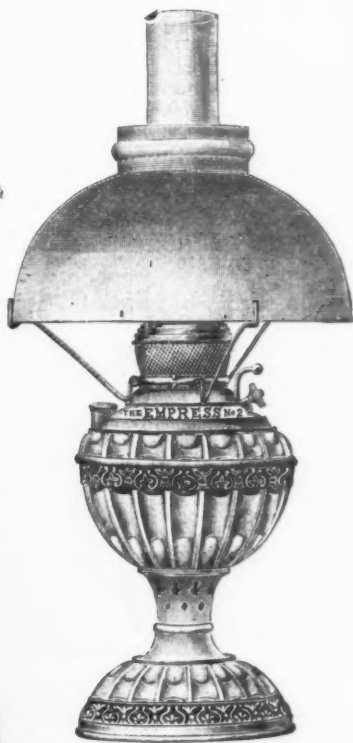


Fig. 2.—Empress Lamp Equipped with Burner Above.

adapted to a line of lamps and oil heaters. Fig. 1 is a view of the burner, which gives a high candle power, the main feature, however, being an automatic extinguisher. The stop plate D makes it impossible to turn the wick E too high, thus preventing any smoke. When the wick is lowered by the thumb screw, plate D of the perforated

thimble will drop on to the wick tubes and extinguish the flame. The stop nut A is for regulating the height of the perforated thimble; B and C are the flame spreaders. Fig. 2 is a view of the Empress No. 2 parlor lamp, which is of the central draft type, takes a No. 2 Miller wick, and has 65 candle power. Every part of the burner may be instantly detached for washing by removing nut A, and at the same operation the wick can be easily rubbed off or replaced by a new one, as in all the Miller lamps. They likewise have a new mammoth fount Empress for hanging having the same improvements, which fits their regular harps, Nos. 162 and 163. Fig. 3 is a representation of a new line of oil heaters in various sizes in which this form of burner is used.

### None-Such Coffee Mill.

The Bronson Company, Cleveland, Ohio, for whom John H. Graham & Co., 113 Chambers street, New York, are direct representatives, are manufacturing the None-



Fig. 1.—None-Such Canister Coffee Mill.

Such coffee mill, here illustrated. Fig. 1 shows the general appearance of the mill, the body of it being made of sheet metal and lithographed in colors, with a bottom of wood. The upper part of the mill will hold a pound of



Fig. 2.—Sectional View of Grinders.

coffee in the bean, so that the berry is always ready to be ground. Fig. 2 is a sectional view of the grinders, there being a positive adjustment for grinding coarse or fine by changing the pin in handle to any of the various notches. At the bottom is a tin drawer to catch the ground coffee. Each mill is packed in an individual carton.

### The Magic Hanger and Fastener.

The Whaley-Dwyer Company, St. Paul, Minn., are manufacturing the Magic storm sash and window screen hanger and fastener, which is herewith illustrated. The

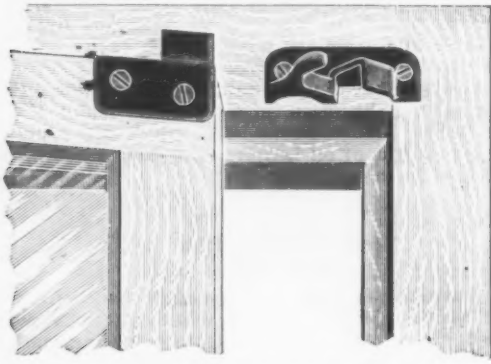


Fig. 1.—Magic Hanger and Fastener.

device permits the sash or screen to be removed or replaced quickly and easily from the inside of the window. Fig. 1 shows the hanger and Fig. 2 the patent fastening or ventilating rod. The sockets have lugs or hinges, which prevent the sash falling out of position when inserting or detaching, which is done by simply holding at the proper angle and pushing upward, or the reverse ac-

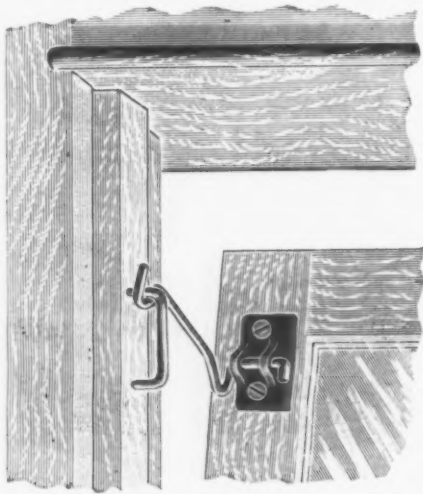


Fig. 2.—Fastening or Ventilating Rod

tion. They are made of malleable iron, finished in enamel or tinned. The patent fastening or ventilating rods on either side allow the sash to be opened for purposes of airing the room or washing the window, and when the sash is closed or drawn in they lock securely through the staple on the inside and lie snug against it. They are of nickel plated finish.

### Phenix Hanger and Fastener No. 1.

Phenix Mfg. Company, Milwaukee, Wis., have made a change in the construction of part C of the Phenix

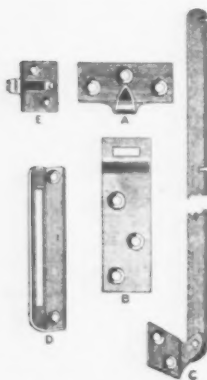


Fig. 1.—Phenix Hanger and Fastener No. 1.



Fig. 2.—Manner of Hanging Screen or Sash.

hanger, shown in Fig. 1 of the accompanying cuts. Formerly part C was let into the sash by cutting a groove about  $\frac{1}{8}$  inch deep, 2 inches long and about  $\frac{1}{8}$  inch wide.

This operation was somewhat troublesome to the carpenter when not supplied with the company's regular groove saw for this purpose. The grooved portion of the C part has been changed to an angle piece riveted to the C part, which is screwed to the face of the sash, and can now be applied much more rapidly. The part C is the adjusting and locking device. Fig. 2 shows the manner of hanging or taking down an entire window screen or storm sash from inside the room.

The safe in the store of M. J. Smith & Son, Boone, Neb., was completely wrecked by robbers on the 2d ult., who took away with them a number of documents, including insurance policies, deeds, &c. No cash or goods were, however, stolen. The firm are expecting soon to add lumber to their stock.

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# Current Hardware Prices.

REVISED JULY 25, 1899.

**General Goods.**—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named represent those current in the market as obtainable by the fair retail hardware trade, whether from manufacturers or jobbers. They apply to such quantities of goods as are usually purchased by retail merchants. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

**Special Goods.**—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, and are in many cases their regular prices to the small trade, lower prices being frequently quoted to the fair retail trade, both by the manufacturers and the jobbers.

**Cut Prices.**—In the present condition of the market, while many advanced prices are announced by the manufacturers, lower prices are often made by the wholesale trade who have stocks on hand purchased at former quotations.

**Names of Manufacturers.**—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE INDEX SUPPLEMENT (April 6, 1899), which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

**Standard Lists.**—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

**Additions and Corrections.**—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

## Adjusters Blind—

Domestic,  $\frac{1}{2}$  doz. \$3.00...33 $\frac{1}{2}$ ¢@33 $\frac{1}{2}$ ¢@10 $\frac{1}{2}$ ¢  
North's...10 $\frac{1}{2}$ ¢  
Zimmerman's—See Fasteners, Blind.

## Window Stop—

Ives' Patent...25¢  
Taplin's Perfection...5¢

## Ammunition—See Caps, Cartridges, Shells, &c.

## Anvils—American—

Eagle Anvils... $\frac{1}{2}$  doz. 7 $\frac{1}{2}$ ¢@7 $\frac{1}{2}$ ¢  
Hay-Budden, Wrought...8 $\frac{1}{2}$ ¢@8 $\frac{1}{2}$ ¢  
Horsehoe brand, Wrought...9 $\frac{1}{2}$ ¢@9 $\frac{1}{2}$ ¢  
Samson... $\frac{1}{2}$  doz. 7 $\frac{1}{2}$ ¢@7 $\frac{1}{2}$ ¢  
Trenton, Wrought... $\frac{1}{2}$  doz. 8 $\frac{1}{2}$ ¢@8 $\frac{1}{2}$ ¢

## Imported—

Armitage's Mouse Hole...8 $\frac{1}{2}$ ¢@9 $\frac{1}{2}$ ¢  
Peter Wright's...9 $\frac{1}{2}$ ¢@9 $\frac{1}{2}$ ¢

## Anvil, Vise and Drill—

Millers Falls Co., \$18.00...20 $\frac{1}{2}$ ¢

## Apple Parers—See Parers, Apple, &c.

## Augers and Bits—

Common Double Spur...70¢@10¢@75¢  
Boring Machine Augers...70¢@10¢@75¢  
Car Bits, 12-in. twist...60¢@10¢@70¢

## Jennings' Pattern—

Auger Bits...60¢@10¢@70¢  
Ford's Auger and Car Bits...40¢@10¢@10 $\frac{1}{2}$ ¢  
Forstner Pat. Auger Bits...25¢  
C. E. Jennings & Co., No. 10 ext. lip. R. Jennings' list...40¢@10¢@10 $\frac{1}{2}$ ¢

No. 30, R. Jennings' list...50¢@10¢@60¢  
Russell Jennings', 40¢@10¢@2 $\frac{1}{2}$ ¢  
L'Hommedieu Car Bits 15¢@15¢@10 $\frac{1}{2}$ ¢  
Pugh's Black...20 $\frac{1}{2}$ ¢  
Pugh's Jennings' Pattern...35¢  
Snell's Auger Bits...70¢  
Snell's Bell Hangers' Bits...5¢  
Snell's Car Bits...60¢@10¢@70¢  
Wright's Jennings Bits (R. Jennings' list)...50¢

## Bit Stock Drills—

Standard list...60¢@10¢@70¢@5¢

## Expansive Bits—

Clark's small, \$18; large, \$28...50¢@10 $\frac{1}{2}$ ¢  
Lavigne's Clark's Pattern, No. 1,  $\frac{1}{2}$  doz., \$26; No. 2, \$18...50¢@10 $\frac{1}{2}$ ¢  
Stearns' No. 1, \$20; No. 2, \$18...40¢@40 $\frac{1}{2}$ ¢  
Swan's...40¢@40 $\frac{1}{2}$ ¢

## Gimlet Bits—

Common Double Cut, gro. \$2.75 to \$3.25  
German Pattern...gro. \$5.00 to \$5.50  
Double Cut, makers' lists...50¢@50¢@10 $\frac{1}{2}$ ¢

## Hollow Augers—

Booney's Adjustable,  $\frac{1}{2}$  doz...\$18.00  
"Homestead"...33 $\frac{1}{2}$ ¢@33 $\frac{1}{2}$ ¢@10 $\frac{1}{2}$ ¢  
Stearns', Common, No. 6...10 $\frac{1}{2}$ ¢  
Stearns', all other numbers...20¢@10 $\frac{1}{2}$ ¢

## Ship Augers and Bits—

Ford's...40¢@10¢@10 $\frac{1}{2}$ ¢  
Snell's...40¢@10¢@10 $\frac{1}{2}$ ¢  
L'Hommedieu's...15¢@10¢@15¢@10 $\frac{1}{2}$ ¢  
Watrous's...40¢@40 $\frac{1}{2}$ ¢@10 $\frac{1}{2}$ ¢

## Awl Hafts, See Hafts, Awl.

## Awls—

Brad Awls:  
Handled...gro. \$2.75 to \$5.10  
Unhandled, Shouldered gro. \$5 to \$70¢  
Unhandled, Patent...gro. 70¢ to 75¢  
Peg Awls:  
Unhandled, Patent...gro. 33¢ to 35¢  
Unhandled, Shouldered gro. \$5 to 70¢  
Scratch Awls:  
Handled, Common...gro. \$3.00 to \$5.75  
Handled, Socket...gro. \$11.00 to \$12.00

## Awl and Tool Sets—See Sets, Awl and Tool.

## Axes—

First Quality, best brands...\$5.25 to \$5.50  
First Quality, other brands...\$4.50 to \$5.00  
Jobbers' Special Brands:  
Good Quality...\$4.25 to \$4.50  
Best Quality...\$4.00 to \$4.25  
Cheap Handled Axes...\$4.75 to \$5.25  
Good Handled Axes...\$5.00 to \$5.25  
Beveled, add 25¢ doz

## Axle Grease—See Grease, Axle.

## Axles—

Concord, loose collar...5¢ c  
Concord, solid collar...5¢ c  
No. 1 Common...4¢ c  
No. 1 $\frac{1}{2}$  Com. New Style...4 $\frac{1}{2}$ ¢ c  
No. 2, Solid Collar...4 $\frac{1}{2}$ ¢ c  
Nos. 7, 8, 11 to 14...60¢  
Nos. 7, 8, 11 to 14, 100 sets...extra 10¢  
Nos. 15 to 18...50¢  
Nos. 19 to 22...70¢

## Balances—

Caldwell low list...30¢  
Pittman's...35¢  
Vanderbilt...30¢

## Spring—

Spring Balances...50¢@50¢@5¢  
Chatillon's Light Spg. Balances...50¢  
Chatillon Straight Balances...40¢@10¢  
Chatillon Circular Balances...50¢@10¢  
Chatillon's Large D's...35¢

## Barb Wire—See Wire, Barb.

## Bars—Crow—

Steel Crowbars, 10 to 40 lb., per lb...3¢@3 $\frac{1}{2}$ ¢

## Beams, Scale—

Scale Beams, List Jan. 12, '82...40¢@10¢@50¢  
Chatillon's No. 1...30¢  
Chatillon's No. 2...40¢

## Beaters—Egg—

Dover (Standard Co.), No. 10,  $\frac{1}{2}$  gro. \$5.25; No. 5, \$3.75; No. 15, \$4.00  
Dover (Taplin Mfg. Co.), No. 50,  $\frac{1}{2}$  gro. \$5.25; No. 100, \$3.25; No. 102, \$4.00; No. 150,  $\frac{1}{2}$  doz. \$1.50; No. 152, \$2.00.  
Lyon's Standard list... $\frac{1}{2}$  doz. \$1.75  
Wonder (S. S. & Co.)... $\frac{1}{2}$  doz. 75¢

## Bellows—

## Blacksmith—

Standard list...70¢@70¢@5¢

Inch... 30 32 34 36 38 40  
Eac t. \$4.25 4.50 5.25 5.75 6.50 7.75  
Extra Length:  
Each \$4.75 5.25 5.75 6.50 7.40 8.75

## Molders—

Inch... 9 10 11 12 14 16  
Doz... \$6.75 7.25 8.50 9.50 12.00 14.50

## Hand—

Inch... 6 7 8 9 10 12  
Doz... \$3.75 4.25 4.50 5.00 5.75 6.75

## Bells—Cow—

Ordinary goods...75¢@10¢  
High grade...70¢@70¢@10¢  
Jersey...75¢@75¢@10¢  
Texas Star...50¢@10¢

## Door—

Gong, Yankee...60¢@10¢  
Ho, E. R. & E. Mfg. Co.'s...50¢@10¢  
Lever and Pull, Sargent's...45¢@10¢@45¢@10 $\frac{1}{2}$ ¢

## Hand—

Hand Bells, Polished...65¢@10¢@70¢  
White Metal...65¢@10¢@70¢  
Nickel Plated...50¢@50¢@10¢@5¢  
Swiss...65¢@65¢@10¢

## Miscellaneous—

Farm Bells...lb. 2¢@2 $\frac{1}{2}$ ¢  
Steel Alloy Church and School...50¢@10¢@60¢

## Belting Rubber—

Common Standard...70¢@10¢@75¢  
Standard...60¢@10¢@70¢  
Extra...60¢@60¢@10¢  
High Grade...60¢@60¢@10¢

## Leather—

Extra Heavy, Short Lap...50¢@10¢  
Regular Short Lap...60¢@80¢@5¢  
Standard...60¢@10¢@60¢@10 $\frac{1}{2}$ ¢  
Light Standard...70¢@10¢

## Bench Stops—See Stops, Bench

## Benders and Upsetters, Tire—

Brettell Tire Upsetter, \$15...50¢  
Green River Tire Benders and Upsetters...20¢  
Stoddard's Lightning Tire Upsetters...40¢@50¢

## Bicycle Goods—

Lane's Cycle Hanger...33 $\frac{1}{2}$ ¢@5¢  
John S. Long's Son's 1899 list:  
Balls...50¢  
Chairs...50¢  
Parts...50¢  
Spokes...50¢@10¢

## Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See Augers and Bits.

## Bit Holders—See Holders.

## Blind Adjusters—See Adjusters, Blind.

## Blind Fasteners—See Fasteners, Blind.

## Blind Staples—See Staples, Blind.

## Blocks—Tackle—

Common Wooden...75¢@10¢@75¢@10¢@5¢  
Eddy's All Steel, Common Bushed...70¢  
Eddy's All Steel, Bronze Bushed...60¢@5¢  
Hartz All Steel, Common Bushed...50¢@10¢  
Hartz All Steel, Bronze Bushed...50¢@10¢  
Ford's Star Brand, Self Lubricating...70¢  
Hollow Steel, Ford's Pat. Star Brand...50¢@10¢  
Lane's Pat. Adj., Perfect Safety and Junior...30¢  
Stowell's Novelty, Mal. Iron...50¢@10¢  
See also Machines, Hoisting.

## Boards, Stove—

1899 List:  
Z. ac...80¢  
Other...40¢

## Bolts—

## Carriage, Machine, &c.—

Common, list Jan. 30, '95...60¢@60¢@10¢  
Norway Iron, \$3.00, list Oct. 7, '84...75¢@10¢@75¢@10¢@5¢  
Phila. Eagle, \$3.00 list...80¢@80¢@10¢  
Bolt Ends, list Jan. 30, '95...60¢@60¢@10¢  
Machine, list June 15, '95...60¢@10¢@...  
Note.—Jobbers' prices on bolts are now generally lower than manufacturers'.

## Door and Shutter—

Cast Iron Barrel, Round Brass Knob:  
Inch... 3 4 5 6 8  
Per doz... \$0.37 30 33 33 36  
Cast Iron Bottom, Japanned:  
Inch... 6 8 10  
Per doz... \$0.83 1.05 1.65  
Cast Iron Chain, Flat, Japanned:  
Inch... 6 8 10  
Per doz... \$1.10 1.32 1.87  
Cast Iron Shutter, Brass Knobs:  
Inch... 6 8 10  
Per doz... \$0.49 .77 .83  
Wrought Barrel Brass Knob:  
Inch... 3 4 5 6 8  
Per doz... \$0.44 .50 .61 .70 1.28  
Wrought Barrel, Bronzed...60¢@60¢@5¢  
Wrought Flush, B. K...50¢@20¢@70¢  
Wrought Shutter...60¢@60¢@10¢@5¢  
Wrought Square Neck...70¢@70¢@10¢  
Wrought Sunk...60¢@60¢@10¢  
Ives' Patent Door...62 $\frac{1}{2}$ ¢@62 $\frac{1}{2}$ ¢@10¢

## Stove and Plow—

Plow...70¢@70¢@10¢  
Stove, list August 27, 1898...67 $\frac{1}{2}$ ¢  
Note.—See Trade Report.

## Tire—

Common, list Feb. 28, '83...67 $\frac{1}{2}$ ¢@67 $\frac{1}{2}$ ¢@5¢  
American Screw Company  
Norway Phila., list Oct. 16, '84...75¢  
Eagle Phila., list Oct. 16, '84...80¢  
Bay State, list Feb. 28, '83...67 $\frac{1}{2}$ ¢  
Franklin Moore Co.:  
Norway Phila., list Oct. 16, '84...75¢  
Eagle Phila., list Oct. 16, '84...80¢  
Eclipse, list Feb. 28, '83...67 $\frac{1}{2}$ ¢  
Port Chester Bolt & Nut Company  
Empire, list Feb. 28, '83...67 $\frac{1}{2}$ ¢  
Keystone Phila., list Oct. '84...80¢  
Norway Phila., list Oct. '84...75¢

## Borers, Tap—

Borers Tap, Ring, with Handle:  
Inch... 1 $\frac{1}{4}$  1 $\frac{1}{2}$  1 $\frac{3}{4}$  2  
Per doz... \$3.50 4.50 5.00 6.50  
Inch... 2 $\frac{1}{4}$  2 $\frac{1}{2}$   
Per Doz... \$7.50 10.25

Enterprise Mfg. Co...25¢@30¢  
No. 1, \$1.25; No. 2, \$1.05; No. 3, \$2.50 each.

## Boring Machines—See Machines, Boring.

## Boxes, Mitre—

Seave 's, each \$4.00...50¢

## Braces—

NOTE.—Most Braces are sold at net prices.  
Common Ball, American...\$1.10 to \$1.20  
Barber's...80¢@80¢@10¢  
Fray's Genuine Spofford's...50¢@10¢@5¢  
Fray's No. 70 to 120, 81 to 123, 207 to 414...50¢@10¢@5¢  
P. S. & W. Co., Peck's Patent...60¢@10¢@60¢@10¢@10¢

## Brackets—

Cast Iron, plain...75¢@75¢@10¢  
Wrought Steel...70¢@10¢@75¢  
Bradley's Wire Shelf...75¢@10¢@80¢

## Bright Wire Goods—See Wire.

## Broilers—

Wire Goods Co...75¢@75¢@10¢

## Buckets, Well and Fire—See Pails.

## Bucks, Saw—

Hoosier...\$ gr. \$23.00 to \$24.00

## Bull Rings—See Rings, Bull.

## Butts—Brass—

Wrought list Sept., '96...30¢@50¢  
Cast Brass, Tiebout's...50¢

## Cast Iron—

Fast Joint, Broad...60¢@60¢@10¢  
Fast Joint, Narrow...60¢@10¢@60¢@10¢@10¢  
Loose Joint...75¢@75¢@10¢  
Loose Pin...75¢@75¢@10¢  
Mayer's Hinges...75¢@75¢@10¢  
Parliament Butts...75¢@75¢@10¢

## Wrought Steel—

Loose Joint...75¢@75¢@10¢  
Table and Back Flaps...75¢@75¢@10¢  
Narrow and Broad...75¢@75¢@10¢  
Inside Blind...75¢@75¢@10¢  
Loose Pin...80¢@80¢@5¢  
Loose Pin, Ball and Steeple Tip...80¢@80¢@5¢

## Cages, Bird—

Hendryx, Brass:  
3000, 5000, 1100 series...10¢  
1200 series...2.30 2.00  
200, 300, 600 and 900 series...40¢@10¢@5¢  
Hendryx Bronze:  
700, 800 series...40¢@10¢@50¢  
Hendryx Enameled...40¢@10¢@50¢

## Callipers—See Compasses.

## Calks, Toe—

Burke's, One Prong, Blunt...5¢@10¢  
Burke's, One Prong, Sharp...5¢@10¢  
Burke's, Two Prong, Blunt...5¢@5¢  
Burke's, Two Prong, Sharp...5¢@5¢

## Can Openers—See Openers, Can.

## Cans, Milk—

Buffalo Pattern:  
Concave Cover...\$1.25 \$2.00 \$2.20  
Convex Cover...2.40 2.15 2.35  
Illinois Pattern...2.30 2.00  
Iowa Pattern...1.75 1.95  
New York Pattern...2.25 2.50  
Baltimore Pattern...2.25 2.50

## Cans, Oil—

Galvanized Blue Band, 1-gal.,  $\frac{1}{2}$  doz. \$1.00 to \$1.80  
S. S. & Co., Galvanized Family with faucet, 3-gal.,  $\frac{1}{2}$  gro. \$2.4, 5-gal. \$60; 10-gal., \$180.00  
Glass Oil... $\frac{1}{2}$  doz. \$1.80 to \$1.85

## Caps—Percussion—

Eley's E. B...50¢  
G. D...per M 32¢@34¢  
F. L...per M 37¢@40¢  
G. E...per M 47¢@50¢  
Musk...per M 57¢@60¢

**Primers—**  
Berdan Primers, \$1.00 ..... 2%  
B. L. Caps (Sturtevant Shells) ..... 2%  
All other primers ..... \$1.00@1.10

**Carpet Stretchers—**  
See Stretchers, Carpet.

**Cartridges—**

B. B. Caps, Con., Ball Sngl. \$1.90  
B. B. Caps, Round Ball, \$1.12@1.18  
Blank Cartridges:  
32 C. F., \$5.50 ..... 2%  
38 C. F., \$7.00 ..... 2%  
22 cal. Rim, \$1.50 ..... 2%  
32 cal. Rim, \$2.75 ..... 2%  
Central Fire ..... 15¢@25¢  
Pistol and Rifle ..... 25¢@50¢  
Primed Shells and Bullets ..... 15¢@25¢  
Rim Fire Sporting ..... 50¢@75¢  
Rim Fire, Military ..... 15¢@25¢

**Casters—**

Bed ..... 70¢@70¢10¢  
Plate ..... 60¢@60¢10¢  
Plate, part Brass ..... 60¢  
Philadelphia ..... 70¢@70¢10¢  
Martin's Patent (Phoenix) ..... 60¢@60¢5¢  
Payson's Anti-friction Furniture ..... 70¢@70¢5¢  
Payson's Anti-friction Truck ..... 60¢@60¢5¢  
Standard Ball Bearing ..... 50¢  
Tucker's Patent, low list ..... 50¢@50¢5¢

**Cattle Leaders—**

See Leaders, Cattle.

**Chain—**

American Coil, Cask Lots:  
5-16 ¼ 5-16 ¾ 7-16 ¾ 9-16 ¾  
8.00 6.25 5.25 4.50 4.35 4.25 4.15  
¾ ¾ 1 inch.  
4.05 4.00 3.90 3.80 cents per lb.  
Less than Cask lots add ¼¢. per lb.  
German Coil, list July 24, '97

German Haller Chain, list July 24, '97 ..... 60¢@60¢10¢  
Trace, Wagon and Fancy Chains, list April, '98 ..... 60¢@60¢10¢  
Jack Chain, list July 10, '98:  
Iron ..... 70¢@70¢10¢  
Brass ..... 50¢@50¢10¢  
Gal. Pump Chain ..... 45¢@45¢10¢  
Breast, Hitching and Reel Chains  
Covert Mfg. Co. .... 70¢  
Covert Mfg. Co. .... 45¢@45¢10¢  
Halter ..... 45¢@45¢10¢  
Heel ..... 45¢@45¢10¢  
Rein ..... 45¢@45¢10¢  
Stallion ..... 45¢@45¢10¢

On-ida Community:  
Niagara and Eureka Welding Co. 1  
and Halter ..... 45¢@45¢10¢  
Niagara and Eureka Welding Co. 2  
and Halter ..... 45¢@45¢10¢  
Ties ..... 55¢@55¢10¢  
American Coil and Halter ..... 55¢@55¢10¢  
American Coil Ties ..... 50¢@50¢10¢

**Chalk—**(From Jobbers.)

Carpenters', Blue ..... gro. 50¢@52¢  
Carpenters', Red ..... gro. 45¢@47¢  
Carpenters', White ..... gro. 40¢@42¢  
See also Crayons.

**Chalk Lines—**See Lines.

**Checks, Door—**

Barley's ..... 40¢  
Colum ..... 50¢@50¢10¢  
Eclipse ..... 60¢@60¢10¢

**Chisels—**

Socket Framing and Firmer  
Standard List ..... 75¢@75¢10¢  
Buck Bros. .... 30¢  
Charles Buck ..... 30¢  
Swan's ..... 75¢@75¢10¢  
L. & L. J. White ..... 30¢@30¢5¢

**Tanged—**

Tanged Firmers ..... 40¢@40¢10¢  
Buck Bros. .... 30¢  
Charles Buck ..... 30¢  
L. & L. J. White, Tanged ..... 25¢@25¢5¢

**Cold—**  
Cold Chisels, good quality lb. 14¢@16¢  
Cold Chisels, fair quality ..... lb. 15¢  
Cold Chisels, ordinary ..... lb. 7¢@7¢5¢

**Chucks—**

Beach Pat., each \$8.00 ..... 20¢  
Morse's Adjustable, each \$7.00 ..... 25¢  
Skinner Patent Chucks:  
Combination Lathe Chucks ..... 40¢  
Drill Chucks ..... 30¢  
Independent Lathe Chucks ..... 40¢  
Improved Planer Chucks ..... 20¢  
Universal Lathe Chucks ..... 40¢  
Union Mfg. Co.:  
Combination ..... 40¢  
Czar Drill ..... 30¢  
Geared Scroll ..... 33¢@33¢10¢  
Independent ..... 40¢  
Union Drill ..... 40¢  
Universal ..... 40¢  
Face Plate Jaws ..... 35¢

**Clamps—**

Adjustable, Hammers' ..... 20¢@20¢5¢  
Adjustable, Stearns' ..... 45¢@45¢10¢  
Cabinet, Sargent's ..... 40¢  
Carriage Makers', P. S. & W. Co. 40¢@10¢  
Carriage Makers', Sargent's ..... 50¢@50¢10¢  
Bealy, Parallel ..... 33¢@33¢10¢  
R. L. Tool Co.'s Wrought Iron ..... 25¢  
Saw Clamps, see Vices, Saw Filers'  
Stearns Malleable, with Wrought Iron ..... 75¢@75¢5¢  
Screw ..... 40¢@40¢10¢  
U. S. Lock Co. ..... 40¢@40¢10¢

**Cleaners, Walk—**

Star Sock, All Steel ..... doz. \$4.00 net  
Star Shank, All Steel ..... doz. \$3.75 net

**Cleavers, Butchers—**

Foster Bros. Flat Hds., 30¢; Rd. Hds., 40¢  
New Haven Edge Tool Co.'s ..... 40¢  
Nichols Bros. Flat hdl., 30¢; Rd. hdl., 40¢  
Fayette R. Plumb ..... 30¢@30¢10¢  
P. S. & W. .... 30¢@30¢10¢  
L. & L. J. White ..... 25¢

**Clippers—**

Chicago Flexible Shaft Company:  
Handy Toilet ..... doz. \$7.20  
Mascotte Toilet ..... doz. \$8.40  
Monitor Toilet ..... doz. \$9.00  
Stewart's Patent ..... doz. \$10.00

**Clips, Axle—**

Eagle and Superior ¼ and 5-16 inch ..... 70¢@70¢10¢  
Norway, ¼ and 5-16 inch ..... 70¢@70¢5¢

**Cloth and Netting, Wire—**  
—See Wire, &c.

**Coaks, Brass—**

Hardware list (Globe, Kerosene, Lever Bibbs, Racking, &c.) ..... 70¢@70¢5¢

**Coffee Mills—**See Mills, Coffee.

**Collars, Dog—**

Brass, Pope & Stevens' list ..... 40¢  
Embossed, Gilt, Pope & Stevens' list 30¢@10¢  
Leather, Pope & Stevens' list ..... 40¢

**Compasses, Dividers, &c.**

Ordinary Goods ..... 70¢@70¢10¢  
Remis & Call Hdw. & Tool Co.:  
Dividers ..... 65¢  
Callipers, Call's Patent Inside ..... 55¢  
Callipers, Double ..... 70¢  
Callipers, Inside or Outside ..... 70¢  
Callipers, Wing ..... 90¢  
Compasses ..... 50¢@5¢  
J. Stevens A. & T. Co. .... 25¢@10¢

**Coolers, Water—**

S. S. & Co.: 2-gal., \$2.70; 3-gal., \$3.20;  
4-gal., \$3.60; 6-gal., \$4.75; 8-gal., \$7.20; 11-gal., \$11; 14-gal., \$14 each 60¢

**Coopers' Tools—**

See Tools, Coopers'.

**Cord—**

Braided, Drab ..... lb. 21¢@25¢  
Braided, White, lb. .... 15¢@20¢  
Cable Laid Italian, lb. A, 18¢; B, 16¢  
Common India ..... lb. 8¢@9¢  
Cotton Sash Cord, Twisted ..... 10¢@15¢  
Patent Russia ..... lb. 12¢@15¢  
Cable Laid Russian, lb. 13½¢@15¢  
India Hemp, Braided, lb. 14¢@15¢  
India Hemp ..... lb. 9¢@10¢  
Patent India ..... lb. 10¢  
Pearl Braided, cotton ..... lb. 16¢  
Massachusetts, White ..... lb. 17¢  
Eddy-tone Braided Cotton ..... lb. 18¢  
Harmony Cable Laid Italian ..... lb. 18¢  
Ossawaun Mills:  
Crown, Solid Braided White ..... lb. 18¢  
Braided, Giant, White ..... lb. 16¢

Peerless:  
Cable Laid Italian ..... 16¢  
Cable Laid Russian ..... 13¢  
Cable Laid India ..... 11¢  
Braided India ..... 18¢

Samson:  
Braided, Drab Cotton ..... lb. 38¢@39¢  
Braided, Italian Hemp ..... lb. 31¢@33¢  
Braided, Linen ..... lb. 53¢@55¢  
Braided, White Cotton ..... lb. 27¢@30¢

Silver Lake:  
A quality, Drab, 40¢ ..... 15¢@10¢  
A quality, White, 35¢ ..... 15¢@10¢  
B quality, Drab, 35¢ ..... 15¢@10¢  
B quality, White, 30¢ ..... 15¢@10¢  
Italian Hemp, 40¢ ..... 15¢@10¢  
Linen, 37¢ ..... 15¢@10¢

**Wire, Picture—**

Braided or Twisted ..... 80¢@80¢10¢

**Corn Knives and Cutters**

—See Knives, Corn.

**Crackers, Nut—**

Acme, Japanned, gr. \$30 ..... 40¢  
Acme, Nickel Plated, gr. \$30 ..... 20¢  
Turner & Seymour Mfg. Co. .... 50¢

**Cradles—**

Grain ..... 55¢  
White Round Crayons, gross ..... 5¢@6¢  
Cases, 100 gro., \$4.50@5.00, at factory.

D. M. Steward Mfg. Co.:  
Metal Workers' gr. \$2.50 ..... 20¢@25¢  
Railroad, gr. \$2.00 ..... 20¢@25¢  
Rolling Mill, gr. \$2.50 ..... 20¢@25¢  
Soapstone Pencils, gr. \$1.50 ..... 20¢@25¢  
See also Chalk.

**Creamery Pails—**See Pails, Creamery.

**Crooks, Shepherds—**

Fort Madison, Heavy ..... doz. \$7.00  
Fort Madison, Light ..... doz. \$6.50

**Crow Bars—**See Bars, Crow.

**Cultivators—**

Victor Garden ..... doz. \$10.00

**Curry Combs—**

See Combs, Curry.

**Cutters—**

American ..... 30¢  
Nos. 1 2 3 4 5  
Each ..... \$5 \$7 \$10 \$25 \$50 \$60  
Connecticut:  
Nos. 0 1 8 10 12  
Each ..... \$1.75 2.25 3.00 3.00 3.50  
Enterprise ..... 25¢@25¢7½¢  
Nos. 5 10 12 22 32  
Each ..... \$2 \$3 \$2.50 \$4 \$6  
Dixon's ..... 30¢@30¢10¢  
Nos. 1 2 3 4 5  
Each ..... \$14.00 \$17.00 \$19.00 \$30.00  
Hale's ..... 70¢  
Nos. 11 12 13  
Each ..... \$27.00 \$39.00 \$45.00  
Home No. 1, gr. doz. \$26.00 ..... 60¢  
Little Giant, gr. doz. ..... 50¢@10¢  
Nos. 305 310 312 320 322  
Each ..... \$35.00 \$48.00 \$44.00 \$71.00 \$68.00

Miles' Challenge, gr. doz. 45¢@45¢10¢  
Nos. 1 2 3  
Each ..... \$22.00 \$30.00 \$40.00

New Triumph No. 605, gr. doz. \$24.00  
Nos. 1 2 3  
Each ..... 33¢@35¢

Woodruff's, gr. doz. 100 150  
Nos. 1 2 3  
Each ..... \$15.00 \$18.00

Chadborn's Smoked Beef Cutter, gr. doz. \$60.00  
Nos. 1 2 3  
Each ..... 25¢@30¢

Enterprise Beef Shavers ..... 25¢@30¢

**Slaw and Kraut—**

Henry Dies on & Son:  
Slaw, C. on Grater, &c. .... 40¢  
Kraut Cutters 24 x 7, 26 x 8, 30 x 9, 55¢  
Kraut Cutters 36 x 12, 40 x 12 ..... 40¢

Tucker & Dorsey Mfg. Co.:  
Kraut Cutters ..... 50¢@50¢10¢  
Slaw Cutters, 1 Knife, gr. \$15@18  
Slaw Cutters, 2 Knife, gr. \$20@27

**Tobacco—**

All Iron, Cheap ..... doz. \$4.50@5.00  
Enterprise ..... 25¢@30¢  
National, gr. doz. \$21.00 ..... 30¢@5¢  
Sargent's, gr. doz. \$24.00 ..... 60¢@60¢10¢

**Washer—**

Appleton's, gr. doz. \$16.00 ..... 60¢@10¢@60¢10¢10¢  
Bonney's ..... gr. doz. \$4.25

**Diggers, Post Hole, &c.—**

Iwan's Improved Post Hole Auger 40¢@5¢  
Iwan's Perfection Post Hole Digger ..... 50¢@10¢  
Samson, gr. doz. \$34.00 ..... 25¢

**Dividers—**See Compasses.

**Dog Collars—**See Collars, Dog.

**Door Checks—**

See Checks, Door.

**Door Springs—**

See Springs, Door.

**Drawers, Money—**

Tucker's Pat. Alar n Ttl No. 1, gr. doz. \$18; No. 2, \$12; No. 3, \$11; No. 4, \$12.

**Drawing Knives—**

See Knives, Drawing.

**Drills and Drill Stocks—**

Common Blacksmiths' Drill, each \$1.50  
Blacksmiths' Self-feeding, each \$5.00@6.00

Bench Drills, Stearns' ..... 50¢@50¢10¢  
Bench, Millers Falls, each \$3.00 ..... 25¢  
Bench, P. S. & W. .... 40¢@10¢  
Goodell Automatic Drills, 40¢@50¢10¢  
Ratchet, Bignall & Keeler ..... 30¢@5¢  
Ratchet, Curtis & Curtis ..... 25¢  
Ratchet, Ingersoll's ..... 25¢  
Ratchet, Parker's ..... 40¢  
Ratchet, Weston's ..... 20¢@25¢  
Ratchet, Whitney's ..... 20¢@10¢  
Whitney's Hand Drill, No. 1, \$10.00;  
Adjustable, No. 10, \$12.00 ..... 33¢@5¢

**Twist Drills—**

Standard List ..... 60¢@10¢@10¢@70¢5¢

**Drill Bits or Bit Stock**

Drills—See Augers and Bits.

**Drill Chucks—**See Chucks.

**Dripping Pans—**

See Pans, Dripping.

**Drivers, Screw—**

Balsey's Screw Holder and Driver, gr. doz. 24-inch, \$6; 4-in., \$7.50 6-in., \$9. 40¢  
Buck Bros. .... 30¢  
Buck Bros' Screw Driver Bits ..... 27¢  
Champion ..... 40¢@10¢  
Disston's Flat Blade, Elec. ric. &c. .... 70¢  
Douglas Mfg. Co. .... 20¢@20¢10¢  
Fray's Hol. H'dle Sets, No. 3, \$12.00 50¢  
Gay & Parsons' Ratchet ..... 35¢  
Goodell's Automatic ..... 50¢@10¢@50¢10¢@5¢  
Mayhew's Black Handle ..... 50¢  
Mayhew's Monarch ..... 45¢@10¢  
New England Specialty Co. .... 50¢@10¢  
New York, Manhattan and Handy ..... 20¢  
Sargent & Co.'s:  
Nos. 1, 20, 40 and 60, 50¢@10¢@50¢10¢@5¢  
Nos. 50 and 55 ..... 50¢@10¢@60¢5¢  
Screw Driver Bits ..... doz. 50¢@70¢  
Stanley's R. & L. Co.'s:  
No. 64, Varnished Handles ..... 70¢@10¢  
No. 80 ..... 75¢@10¢

**Egg Beaters—**See Beaters, Egg.

**Emery—**Nos. 4 to 54 to Flour, CF:

46 gro. 180 gro. F.F.F.  
Kegs ..... lb. 1½¢ 5 c 3 c  
½ Kegs ..... lb. 1½¢ 5 c 3 c  
¼ Kegs ..... lb. 5 c 5 c 3 c  
10 lb. cans, 10  
in case ..... 6 c 6 c 5 c  
10 lb. cans, less  
than 10 ..... 10 c 20 c 8 c

**Enameled and Tinned Ware—**See Ware, Hollow.

**Escutcheon Pins—**

See Pins, Escutcheon.

**Extractors, Lemon Juice—**

—See Squeezers, Lemon.

**Fasteners, Blind—**

Zimmerman's ..... 60¢@10¢

**Faucets—**

Cork Lined ..... 70¢@50¢70¢10¢5¢  
Metallic Key, Leather Lined ..... 65¢@10¢70¢

**Red Cedar—**

B. & L. B. Co.:  
West's Lock, Open and Shut Key 50¢@10¢  
John Sommer's Peerless Tin Key ..... 40¢  
John Sommer's Boss Tin Key ..... 50¢  
John Sommer's No Brand Metal Key ..... 80¢  
John Sommer's W. P. Metal Key ..... 40¢  
John Sommer's Diamond Lock ..... 40¢  
John Sommer's L. X. L. Cork Lined ..... 50¢  
John Sommer's Reliable Cork Lined ..... 60¢  
John Sommer's Common Cork Lined ..... 70¢  
John Sommer's Chicago Cork Lined ..... 60¢  
John Sommer's O. K. Cork Lined ..... 50¢  
John Sommer's Perfection Cedar ..... 40¢  
Star, Metal Plug, new list ..... 40¢@40¢5¢  
Stearns' Wood, No. 200, Wood-lined Key ..... 50¢@10¢  
Stearns' Matchless, Wood, No. 300 ..... 60¢  
Stearns' Gem, Wood, No. 400 ..... 60¢@10¢  
Lockport, Metal Plug, reduced list 60¢@5¢  
Self Measuring:  
Enterprise, gr. doz. \$38.00 ..... 40¢  
Lane's, gr. doz. \$36.00 ..... 33¢@5¢  
National Measuring, gr. doz. \$36.00 33¢@5¢

**Felloe Plates—**

See Plates, Felloe.

**Files—Domestic—**

List revised June 1, 1899.  
Best Brands ..... 70¢@70¢10¢10¢  
Good Brands ..... 75¢@10¢80¢5¢  
Fair Brands ..... 80¢@5¢80¢10¢  
Second Quality ..... 90¢@10¢85¢

**Imported—**

Stubs' Tapers, Stubs' list, July 24, '97 ..... 25¢

**Fixtures, Grindstone—**

Net Prices:  
Inch. 15 17 19 21 24  
Per doz. \$2.50 2.60 2.95 3.35 4.50  
Stowell's Grant Grindstone-Hanner ..... doz. \$6.00@7.00  
Stowell's Grindstone Fixtures ..... 55¢@10¢  
P. S. & W. Co. .... 50¢@10¢10¢  
Reading Hardware Co. .... 30¢@20¢10¢  
Sargent's Patent ..... 70¢@10¢70¢10¢10¢

**Fluting Machines—**

See Machines, Fluting.

**Fodder Squeezers—**

See Squeezers, Fodder.

**Forks—**

Old, or 1895 list.  
Hay, Manure, &c. 60¢@10¢60¢10¢5¢  
1898, or High list.  
Hay, 2 tine ..... 70¢@5¢  
Hay, 3 tine ..... 70¢@5¢  
Manure, 4 tine ..... 60¢@20¢25¢  
Manure, 5 and 6 tine ..... 70¢@10¢25¢  
Spading ..... 70¢@15¢25¢  
Victor, Hay ..... 60¢@33¢@25¢25¢  
Victor, Manure ..... 75¢@5¢25¢  
Victor, Header ..... 70¢@12¢@25¢  
Champion, Hay ..... 70¢@10¢25¢  
Champion, Manure ..... 75¢@5¢  
Columbia, Hay ..... 70¢@7½¢@25¢  
Columbia, Manure ..... 75¢@5¢25¢  
Columbia, Spading ..... 60¢@25¢25¢  
Hawkeye Wood Barley 4 tine doz. \$5.00; 6 tine, \$5.50.  
Plated.—See Spoons.

**Frames—**

Saw—

Red, Polished and Varnished, doz. \$1.00@1.10  
White ..... gro. \$3.25@3.50

**Screens, Window and Door—**

Bonanza Window Screens ..... 60¢@60¢5¢  
Phillips' Window Screen Frames ..... 60¢@5¢  
Porter's Extension Window Screens ..... 60¢@5¢  
Stearns' Frames and Corners 25¢@25¢10¢  
Stearns' Monarch Adjustable Window Screens ..... 50¢  
Stearns' Gem Window Screen Frames ..... 25¢@10¢  
Wabash Adj. Window Screen ..... 50¢  
Warner's Screen Corner Irons ..... 33¢@10¢

**Freezers, Ice Cream—**

Qts. 2 3 4 6 8 10  
Per doz. \$1.10 1.60 1.35 2.30 3.00 3.90  
Good \$1.25 1.35 1.70 2.05 2.65 3.50  
Fair \$1.00 1.10 1.30 1.75 2.30 3.90

**Fruit and Jelly Presses—**

See Presses, Fruit and Jelly.

**Fry Pans—**See Pans, Fry.

**Fuse—**

Per 100 Feet.



**Gimlets—**

Nail, Metal, Assorted, gro. \$1.50@2.00  
Spike, Metal, Assorted, gro. \$3.25@3.75  
Nail, Wood Handled, Assorted, gro. \$4.00@4.50  
Spike, Wood Handled, Assorted, gro. \$5.00@5.25

**Glass, American Window**

List Jan. 1, 1898.

Small lots from store:  
Eastern.....80¢@20¢  
Western.....80¢@20¢@5¢  
From Factory, with Frt. Allowance:  
Carloads.....80¢@20¢  
1000 boxes or more, Gulf Ports.....85¢@10¢  
3000 boxes or more.....85¢@10¢  
5000 boxes or more.....85¢@5¢

**Glue—Liquid, Fish—**

List A, Bottles or Cans, with Brush.....87½¢@50¢  
List B, Cans (½ pts., pts., qts.).....83½¢@48¢  
List C, Cans (½ gal., gal.).....25¢@45¢

**Glue Pots—See Pots, Glue.****Grease, Axle—**

Allerton's Axle:  
1 lb. Tins, ½ gr.....\$9.00  
3 lb. Tin Pails, ½ doz., \$2.00; 5 lb., \$3.00;  
10 lb., \$6.00.  
25 lb. wood pails.....½ doz. \$12.00  
Dixon's Everlasting.....10 lb. pails, ea. 85¢  
Dixon's Everlasting, in bxs. ½ doz. 1 lb.  
\$1.20; 2 lb. \$2.00  
Lower grades, special brands.....½ gr. \$5.00@6.50

**Grindstone Fixtures—**

See Fitzurza, Grindstone.

**Gun Powder—See Powder.****Hack Saws—See Saws.****Hafts, Awl—**

Peg Patent, Leather Top.....gro. \$4.90  
Peg Patent, Plain Top.....gro. \$3.45  
Sewing, Brass Ferrule.....gro. \$1.50  
Saddlers', Brass Ferrule.....gro. \$1.35  
Peg, Common.....gro. \$1.25  
Brad, Common.....gro. \$1.35

**Halters and Ties—**

Covert Mfg. Co., Web and 1 Rope.....45¢@2¢  
Covert's Saddlery Works', 98 list.....70¢

**Hammers—****Handled Hammers—**

Heller's Machinists'.....40¢@40¢5¢  
Magnetic Tack, No. 1, 2, 3, \$1.25, \$1.50,  
\$1.75.....40¢@10¢  
Pees, Stow & Wilcox.....40¢@40¢5¢  
Fayette R. Plumb:  
Artisans' Choice, A. E. Hall.....40¢@12¢  
Engineers' and B. S. Hand.....60¢  
Machinists' Hammers.....60¢  
A. E. & A. E. Bell Face Nail.....40¢@12¢  
Other Nail Hammers.....50¢  
Sargent's C. S. New List.....45¢@50¢

**Heavy Hammers and Sledges—**

\$ lb. and under.....lb. 45¢ } 75¢@10¢5¢  
3 to 5 lb.....lb. 35¢ } 40¢@5¢  
Over 5 lb.....lb. 30¢ }  
Note.—Lower net prices sometimes made by jobbers.  
Wilkinson's Smiths'.....9½¢@10¢ lb.

**Handcuffs and Leg Irons**

See Police Goods.

**Handles—****Agricultural Tool Handles—**

Hoe, Rake, Fork, &c., 60¢@10¢@60¢@10¢5¢  
Shovel, &c., Wood D Handle.....60¢@10¢

**Cross-Cut Saw Handles—**

Atkins.....40¢  
Champion.....45¢@45¢10¢  
Dixson.....50¢  
Ely's Perfection.....½ doz. \$3.00

**Mechanics' Tool Handles—**

Auger, assorted.....gro. \$2.25@2.50  
Auger, large.....gro. \$2.75@3.00  
Brad Awl.....gro. \$1.40@1.50

**Chisel Handles:**

Apple Firmer, gro. ass'd. \$2.25@  
\$2.50; large, \$2.75@3.00.  
Hickory Firmer, gro. ass'd. \$2.25  
@2.50; large, \$2.50@2.75.  
Socket, gro. ass'd. Firmer, \$1.50@  
\$1.60; Framing, \$2.50@2.75.  
File, assorted.....gro. \$1.00@1.15  
Hammer, Hatchet, Ace, &c.....60¢@10¢  
Hoe, Rake and Fork.....60¢@10¢@10¢5¢  
Shovel and Spade, Wood D Handle.....60¢@1.50

Hand Saw, Varnished, doz. 75¢@90¢  
Not Varnished.....65¢@80¢

**Plane Handles:**

Jack, doz. 25¢@25¢; Jack Bolted.....55¢@60¢  
Fore, doz. 35¢@35¢; Fore, Bolted.....70¢@75¢

**Hangers—**

Barn Door, New Pattern, Round Groove, Regular:  
Inch.....3 4 5 6 8  
Doz.....\$1.28 1.68 2.16 2.64 3.30

Barn Door, New England Pattern, Check Back, Round Groove, Regular:  
Inch.....3 4 5 6  
Doz.....\$2.88 3.74 4.84 6.16

Bigelow & Dowse Co.:  
Paragon, No. 1, \$3.50; No. 2, \$4.50;  
No. 3, \$5.50 ½ doz.  
Chicago Spring Butt Co.:  
Friction.....35¢@35¢10¢  
Oscillating.....35¢@35¢10¢  
Big Twin.....35¢@35¢10¢  
Chisholm & Moore Mfg. Co.:  
Advance.....60¢@10¢  
Cleveland.....60¢@10¢  
Baggage Car Door.....50¢  
Elevator.....40¢  
Railroad.....55¢

Lane Bros.:  
Parlor, Standard.....40¢@10¢  
Barn Door, Standard.....60¢@10¢  
Covered.....50¢@50¢  
Cycle, ½ doz. \$12.00.....33½¢@5¢  
No. 50.....60¢@5¢  
Parlor Door, New Model.....40¢@5¢

Lawrence Bros.:  
Crown.....60¢@10¢  
New York.....60¢@10¢@10¢5¢  
Railroad.....60¢@10¢  
McKinney Mfg. Co.:  
No. 2, Standard, \$18.....60¢@10¢  
No. 1, Special, \$13.....60¢@10¢

E. C. Stearns & Co.:  
Davis Parlor Door.....50¢@50¢5¢  
Gem Parlor Sliding Door.....50¢@10¢  
Chicago.....50¢@50¢  
Steel Single Track Parlor, \$6.....50¢  
Royal Parlor Door.....50¢  
Warner's Pat.....20¢@10¢@10¢  
Warner's Imp'd Single.....40¢@10¢

Stowell Mfg. and Foundry Co.:  
Badger.....60¢@10¢  
Baggage Car Door.....33¢@10¢  
Clump & Anti-Friction.....55¢@5¢  
Elevator.....40¢  
Interstate.....60¢@10¢  
Magic.....60¢@10¢  
Matchless.....60¢@10¢  
Nausen.....60¢@10¢  
Parlor Door.....60¢@10¢  
Railroad.....55¢@5¢  
Street Car Door.....50¢@10¢  
Steel, Nos. 300, 400, 500.....45¢@15¢  
Wild West.....50¢@5¢  
Zenith for Wood Track.....55¢@5¢

Taylor & Boggis Foundry Co.:  
Kiddie's.....60¢@50¢@10¢  
Van Wagner & Williams Hdr Co.:  
American Trackless.....83½¢@10¢

Wilcox Mfg. Co.:  
Aurora Steel Endless.....60¢  
Bike Roller Bearing.....60¢@10¢  
Bike Steel Endless.....60¢@10¢  
C. J. Roller Bearing.....60¢@10¢  
Cycle Ball Bearing.....60¢@10¢  
Eye Steel.....60¢@10¢  
Economic Single Track.....60¢@10¢  
L. T. Roller Bearing.....70¢  
New Era.....50¢@10¢  
New Richards.....60¢  
O. K. Roller Bearing.....70¢  
Prindle Improved.....60¢@10¢  
Richards' Improved.....60¢@10¢  
Richards' Single Track.....50¢@10¢  
Wilcox Dwarf Roller Bearing.....40¢@10¢  
Wilcox-Ives.....60¢@10¢  
Wilcox Tandem Roller Bearing.....60¢@10¢

Wilcox Trolley Ball Bearing.....40¢@10¢  
Wilcox Trolley Roller Bearing.....50¢  
Wilcox Trolley Roller Bearing.....40¢@10¢  
Fire.....40¢@10¢  
Wood Track.....60¢

**Harness Menders—See Menders.**

**Harness Snaps—See Snaps.**

**Hasps—**  
McKinney's Perfect Hasp, ½ doz. \$1.10  
40¢@10¢

**Wrought Hasps, Staples, &c.—See Wrought Goods.**

**Hatchets—**  
Best Brands.....60¢@12¢@50¢5¢  
Cheaper Brands.....60¢@10¢@60¢5¢  
Note.—Net prices often made.

**Hay and Straw Knives—See Knives.**

**Hinges—**  
**Blind Hinges—**  
Lull & Porter:  
No.....1 1¼ 2 2½  
Doz. pair.....\$0.47 .48 .50 .55  
1868 Old Pattern:  
No.....1 3 5 5  
Doz. pair.....\$0.55 1.00 2.00

Parker.....75¢@10¢@75¢@10¢5¢  
North's Automatic Blind Hinges, No. 2, for Wood, \$9.00; No. 3, for Brick, \$11.50.....10¢  
Reading's Gravity.....75¢@10¢  
Sargent's, Nos. 1, 3, 5, 11, 13, 75¢@75¢10¢

Wrightsville Hardware Co.:  
Acme, Lull & Porter.....80¢@10¢  
Buffalo Gravity Locking, Nos. 1, 3 and 5.....80¢@10¢5¢  
Champion Gravity Locking, No. 75.....80¢@10¢  
1868, Old Pat'n, Nos. 1, 3 & 5.....80¢@10¢  
Tip Pattern, Nos. 1, 3 & 5.....80¢@10¢5¢  
Double Locking, Nos. 20 and 25.....75¢  
Empire, Nos. 101 and 103.....80¢  
Niagara Gravity Locking, Nos. 1, 3 and 5.....80¢@10¢  
Noiseless, Nos. 50, 60, 65 and 55.....80¢  
O. S. Lull & Porter.....80¢@10¢5¢  
Pioneer, Nos. 060, 45 and 5½.....75¢5¢  
Steamboat Gravity Locking, No. 10.....80¢@10¢5¢  
Stanley's Steel Gravity Blind Hinges, ½ doz. sets \$1.30.....40¢@10¢

**Gate Hinges—**  
Clark's or Shepard's—Doz. sets:  
No.....1 2 3  
Hinges with Latches.....\$1.10 1.75 3.25  
Hinges only.....0.92 1.40 2.40  
Latches only.....0.46 .46 .80

**New England:**  
With Latch.....doz. \$1.45@1.50  
Without Latch.....doz. \$1.30@1.35

**Reversible Self-Closing:**  
With Latch.....doz. \$1.70@1.75  
Without Latch.....doz. \$1.50@1.55

**Western:**  
With Latch.....doz. \$1.75@1.80  
Without Latch.....doz. \$0.75@0.78

**Spring Hinges—**

Holdback, Cast Iron.....gro. \$6.50@6.75  
Non-Holdback, Cast Iron.....gro. \$5.50@5.75

J. Bardsley:  
Bardsley's Patent Checking.....15¢  
Bommer Bros.:  
Bommer's.....40¢  
Chicago Spring Butt Co.:  
Chicago.....30¢  
Garden City Engine House.....30¢  
Keene's Saloon Door.....30¢

Lawson Mfg. Co.:  
Matchless.....25¢  
Matchless Pivot.....40¢  
Payson Mfg. Co.:  
Oblique, Dbl. Acting.....50¢@50¢5¢  
E. C. Stearns & Co.:  
Nos. 45 and 51.....70¢

Stover Mfg. Co.:  
Ideal, No. 16, Detachable, ½ gr.....\$2.50  
Ideal, No. 4.....½ gr. \$9.00  
New Idea No. 1.....½ gr. \$9.00  
New Idea, Double Acting.....45¢  
Van Wagner & Williams Hdr Co.:  
Acme.....30¢@5¢  
American.....30¢  
Columbia, No. 14.....½ gr. \$8.00  
Columbia, No. 18.....½ gr. \$24.00  
Crown.....30¢  
Gem.....30¢  
Knoxall.....½ gr. \$9.00  
Oxford.....30¢

Extra 10¢ often given on most of these Hinges.

Extra 50¢ 10¢ often given.

**Wrought Iron Hinges—**  
Strap and T Hinges, &c., list Mar. 15, 1898:  
Light Strap Hinges.....70¢  
Heavy Strap Hinges.....70¢@10¢  
Light T Hinges.....60¢5¢  
Heavy T Hinges.....60¢5¢  
Extra Heavy T Hinges.....70¢  
Note.—Change in base discounts.

Roller Plate.....70¢@70¢10¢  
Screw Hook { 6 to 12 in. lb. 3/4 @ 5/4 c  
{ 14 to 20 in. lb. 3 @ 5/4 c  
and Strap. { 22 to 36 in. lb. 2.75 @ 3 c

**Hoes—**  
**Eye—**  
Scovill and Oval Pattern.....60¢@60¢10¢  
Grub. list Feb. 23, 1899.....70¢@10¢75¢  
D. & H. Scovill.....35¢@35¢5¢

**Handled—**  
1895 or Old List:  
Cotton, Field, Planters', &c.....60¢@10¢@60¢10¢5¢  
1898 or High List:  
Field and Garden.....60¢@40¢5¢5¢  
Ladies', Boys', Toy and Onion.....75¢@12¢5¢5¢  
Street and Mortar.....75¢@15¢5¢5¢  
Cotton.....75¢@10¢2½¢5¢  
Planters'.....75¢@16¢5¢5¢  
Weeding.....75¢@10¢5¢5¢

Note.—Manufacturers and jobbers use a diversity of lists, and often sell at net prices.

Ft. Madison Crucible Garden Hoe.....75¢@10¢2¢  
Ft. Madison Crescent Cultivator Hoe, per doz.....\$3.75  
Ft. Madison Mattock Hoe, ½ doz.....\$4.00  
Ft. Madison Sprouting Hoe, ½ doz.....\$4.50  
Ft. Madison Dixie Tobacco Hoe.....75¢@10¢2¢5¢  
Kretzinger's Cut Easy, per doz.....\$4.50  
Warren Hoe.....60¢@10¢

**Hog Rings and Ringers—**  
See Rings and Ringers.

**Hoisting Apparatus—**  
See Machines, Hoisting.

**Hollow Ware—**  
See Ware, Hollow.

**Holders—**  
**Bit—**  
Angular, ½ doz. \$24.00.....45¢@10¢

**File and Tool—**  
Nicholson File Holders and File Handles.....33½¢

**Hooks—**  
**Cast Iron—**  
Bird Cage, Reading.....66½¢@70¢  
Bird Cage, Sargent's List.....50¢@50¢5¢  
Clothes Line, Sargent's List.....50¢@50¢5¢  
Clothes Line, Stowell's.....70¢@5¢  
Clothes Line, Reading List.....65¢@10¢@65¢@10¢10¢  
Coat and Hat, Stowell's.....70¢@5¢  
Coat and Hat, Reading.....70¢@75¢  
Coat and Hat, Sargent's List.....50¢@10¢  
Coat and Hat, Wrightsville List.....70¢@10¢  
Harness, Reading List.....70¢@10¢75¢

**Wire—**  
Belt.....80¢@10¢@80¢20¢  
Atlas, Coat and Hat.....50¢@50¢10¢  
Wire Coat and Hat.....60¢@80¢5¢  
Acme.....70¢@70¢5¢  
Gem.....60¢@5¢  
Bright Wire Goods—See Wire.

**Wrought Iron—**  
Box, or Case, Octagon Steel.....doz. \$2.00@2.15  
Cotton.....doz. \$1.60@1.10  
Picture, T. & S. Mfg. Co.....75¢  
Tassel, T. & S. Mfg. Co.....50¢@10¢  
Wrought Staples, Hooks, &c.—See Wrought Goods.

**Miscellaneous—**  
Bush, Light, doz. \$5.00; Medium, \$5.50; Heavy, \$6.00  
Grass.....Nos. 1 2 3 4  
Best.....\$1.60 1.75 2.00  
Common.....\$1.50 1.50 1.50 1.75  
Potato and Manure.....75¢@15¢

Whiffletree.....lb. 4¾¢  
Hooks and Eyes:  
Brass.....70¢@10¢75¢  
Malleable Iron.....70¢@10¢  
Covert Saddlery Works' Self Locking Gate and Door Hook, 4 in. ½ gross \$13.00; 6 in. \$17.20.....70¢  
Crown Picture.....60¢  
Bench Hooks—See Bench Stops.  
Corn Hooks—See Knives, Corn.

**Horse Nails—See Nails, Horse Horseshoes—**  
See Shoes, Horse.

**Hose, Rubber—**  
Garden Hose, ¾-inch:  
Competition.....ft. 4¾¢@ 5¼¢  
3-ply Standard.....ft. 5¼¢@ 6 c  
4-ply Standard.....ft. 6¼¢@ 6¾¢  
3-ply extra.....ft. 6¾¢@ 7¼¢  
4-ply extra.....ft. 7¼¢@ 8¼¢  
High Grade.....ft. 9 @ 11 c  
Cotton Garden, ¾-in., coupled:  
Low Grade.....ft. 5¼¢@ 6¢  
Fair quality.....ft. 7 c  
Good quality.....ft. 8 @ 8¼¢

**Irons—**  
Sad—  
From 4 to 10.....lb. 2½¢@3¼¢  
B. B. Sad Irons.....lb. 2¾¢  
Chinese Laundry.....lb. 3¼¢@4¼¢  
Chinese Sad.....lb. 3¼¢@3¾¢  
Mrs. Potts', per set:  
Nos. 50 55 60 65  
70¢@77c 65¢@72c 75¢@81c 70¢@76c  
New England Pressing.....lb. 5c

**Soldering—**  
Soldering Coppers.....lb. 25¢@26¢  
Covert Mfg. Co.....35¢@2¢

**Pinking—**  
Pinking Irons.....doz. 50¢@60¢

**Jack Screws—See Screws.**

**Jacks, Wagon—**  
Covert Mfg. Co. Steel.....45¢@2¢  
Daisy, ½ doz. \$12.00.....70¢  
Lockport.....40¢@40¢10¢  
Victor, ½ doz. \$20.00.....70¢  
Lane's Steel.....30¢

**Kettles—**  
Brass, Spun, Plain, list Jan. 10, '99.....15¢@20¢  
Enameled and Tea—See Ware, Hollow.

**Knife Sharpeners—**  
See Sharpeners, Knife.

**Knives—**  
**Butcher, Shoe, &c.—**  
Dick's Butcher Knives.....40¢  
Foster Bros' Butcher, &c.....40¢  
Nichols' Butcher Knives.....50¢  
Table and Pocket Cutlery and John Wilson's Butcher Knives—Net prices.  
Hay and Straw—See Hay Knives.

**Corn—**  
Ft. Madison Cut-Easy, ½ doz.....\$3.25

**Drawing—**  
Standard List.....75¢@75¢10¢  
Adjustable Handle.....25¢@33½¢  
Bradley's.....35¢  
Swan's.....75¢@75¢5¢3¼¢  
Watrous.....30¢@10¢40¢  
L. & J. White.....20¢@25¢  
Cautelo's Folding.....50¢@50¢5¢

**Hay and Straw—**  
Blizzard.....\$5.50@6.00  
Iwan's Sickle Edge.....½ doz. \$10.50  
Lightning, from Jobbers.....\$5.00@6.00

**Mincing—**  
Buffalo Adjustable, ½ doz. \$3.00.....40¢  
Smith's, ½ doz. Single, \$2; Double, \$3.....45¢@50¢

**Miscellaneous—**  
Farriers'.....doz. \$2.00@3.00  
Wostenhime's.....½ doz. \$3.00@3.25

**Knobs—**  
Base, 2¼-inch, Birch, Rubber tip, gro.....\$1.20@1.25  
Carriage, Jap. all sizes.....gro. 27¢@30¢  
Door, Mineral.....doz. 62¢@65¢  
Door, Por. Jap d.....doz. 75¢@78¢  
Door, Por. Nickel.....doz. \$1.70@1.80  
Bardsley's Wood Door, Shutter, &c.....15¢  
Picture, Sargent's.....70¢@10¢  
Snow's Victor.....50¢@10¢

**Ladies—**  
Melting—  
P. S. & W.....35¢@10¢40¢  
Reading.....50¢@10¢  
Sargent's.....60¢@60¢10¢

**Lanterns—**  
Tubular—  
Regular Tubular.....doz. \$8.00.....40¢@5¢  
Side Lift Tubular.....\$8.50.....40¢@5¢  
Square Lift Tubular.....\$8.50.....40¢@5¢

**Bull's Eye Police—**  
2½-inch flash light.....doz. \$3.50@3.75  
3-inch flash light.....doz. \$5.00@4.25  
2½-inch regular.....doz. \$2.50@5.50  
3-inch regular.....doz. \$3.50@3.75

**Latches, Thumb—**  
Roggin's Latches.....doz. 28¢@30¢

**Lawn Mowers—**  
See Mowers, Lawn.

**Leaders, Cattle—**  
Small.....doz. 45¢; large, 50¢  
Covert Mfg. Co.....45¢@2¢

**Lemon Squeezers—**

See Squeezers, Lemon.

**Lifters, Transom—**

Dickson:  
 3 x 4 ft. x 1/2" ..... \$100 \$10.00  
 Other sizes, Iron ..... 70¢ 10¢  
 Other size, Brass ..... 70¢ 10¢  
 Excelsior ..... 60¢ 60¢ 10¢  
 Payson's:  
 Solid Grip Nos. 303 and 304, 1/2" 103,  
 \$11.00  
 Other sizes ..... 70¢ 10¢

**Lines—**

Wire Clothes, Nos. 18 19 20  
 100 feet ..... \$2.50 2 25 2 00  
 75 feet ..... \$1.50  
 Ossawaun Mills:  
 Crown Solid Braided Chalk ..... 33¢ 4¢  
 Mason's, No. 0 to No. 3 ..... 33¢ 4¢  
 Silver Lake Braided Chalk, No. 0, \$6.00;  
 No. 1, \$6.50; No. 2, \$7.00; No. 3, \$7.50  
 1/2" gr ..... 30¢

**Locks, &c.— Cabinet—**

Cabinet Locks ..... 35¢ 40¢

**Door Locks, Latches, &c.—**

[Not prices are very often made on these goods.]

Reading ..... 60¢ 60¢ 10¢  
 R. & E. Mfg. Co. .... 50¢ 10¢ 60¢ 5¢  
 Sargent & Co. .... 30¢ 60¢ 10¢  
 E. B. & Co., Locks, Knobs, &c. 40¢ 40¢ 5¢  
 Snow's Victor ..... 50¢ 10¢

**Elevator—**

Stowell's ..... 33¢ 4¢

**Padlocks—**

Wrought Iron, list Dec. 3, '97 ..... 70¢ 5¢ 70¢ 10¢ 5¢  
 Dog Collar, S. B. Co. .... 40¢  
 R. & E. Mfg. Co. Wrs. Steel and Brass 50¢  
 S. B. & Co. .... 40¢

**Sash, &c.—**

Fitch's Patent ..... 65¢ 10¢  
 Ives' Patent ..... 62¢ 10¢ 60¢ 5¢ 10¢  
 Payson's Perfect ..... 70¢  
 Payson's Signal (new list) ..... 70¢ 10¢  
 Reading ..... 60¢ 10¢ 10¢ 70¢

**Machines—****Boring—**

Without Augers.  
 Upright Angular.  
 Douglas ..... \$2.50 \$3.00  
 Jennings ..... 2.50 3.00  
 Miller's Falls ..... 5.75  
 Snell's, Rice's Pat. 2.50 2.75

**Fluting—**

Crown Jewel, 6 in. .... \$2.50 2.75

**Hoisting—**

Moore's Anti-Friction Differential Pulley Block ..... 30¢  
 Moore's Hand Hoist, with Lock Brake 20¢

**Washing—**

Wayne American, No. 2, doz. \$27.50  
 Western Star, No. 2, doz. 27.50  
 Western Star, No. 3, doz. 30.00  
 St. Louis, No. 41, doz. 68.00

**Mallets—**

Hickory ..... 50¢ 50¢ 10¢  
 Lignumvite ..... 50¢ 50¢ 10¢  
 Tinnars', Hickory and Applewood, doz. 50¢ 55¢  
 Fiber Head, Stearns' ..... 25¢

**Mattocks—**

List Feb. 23, 1899 ..... 60¢ 10¢ 60¢ 10¢ 10¢

**Meat Cutters—**

See Cutters, Meat.

**Milk Cans—See Cans, Milk.****Mills— Coffee—**

Box and Side, list Jan. 1, '88 ..... 60¢ 10¢ 60¢ 10¢ 10¢  
 Net prices are often made on some goods which are lower than above discounts.  
 Enterprise Mfg. Co., list Jan. 17, '93, 30¢  
 National, list Jan. 1, '94 ..... 30¢  
 Parker's Columbia and Victor ..... 60¢ 10¢  
 Parker's Upright ..... 30¢ 10¢ 40¢  
 Swift, Lane Bros. .... 33¢ 35¢

**Mincing Knives—**

See Knives, Mincing.

**Molasses Gates—**

See Gates, Molasses.

**Money Drawers—**

See Drawers, Money.

**Mowers, Lawn—**

Net prices are generally quoted.

20 12 14 16-inch  
 Cheap ..... \$1.50 \$1.60, all sizes.  
 Good ..... 2.50 2.75 3.00 3.25  
 High Grade 3.50 3.75 4.00 4.25  
 F. un-yvaula and Continental ..... 60¢ 10¢ 10¢

**Philadelphia:**

All Styles except A and E. .... 70¢ 10¢  
 Style A, all Steel ..... 60¢ 10¢  
 Style E, Low Wheel ..... 60¢ 10¢  
 Style E, High Wheel ..... 70¢ 10¢  
 Racine ..... 60¢ 10¢ 10¢

**Nails—**

Cut and Wire. See Trade Report.  
 Wire Nails and Brads, Papered.  
 List May 1, '92 ..... 80¢ 10¢ 10¢ 80¢ 10¢ 10¢ 5¢  
 Hungarian, Finishing, Upholsterers', &c.  
 See Tacks.

**Horse—**

Nos. 6 7 8 9 10  
 A. C. .... 25¢ 25¢ 25¢ 21¢ 21¢  
 American ..... 9¢ 9¢ 9¢ 9¢ 9¢ net  
 Ausable ..... 28¢ 28¢ 25¢ 24¢ 23¢  
 Capewell ..... 19¢ 18¢ 17¢ 16¢ 16¢ 10¢ 5¢  
 C. R. K. .... 25¢ 23¢ 22¢ 21¢ 21¢ 40¢  
 Champlain ..... 28¢ 26¢ 25¢ 24¢ 23¢  
 40¢ 5¢ 2¢  
 Clinton Fin. .... 19¢ 17¢ 16¢ 15¢ 14¢ 30¢ 5¢  
 Maud S. .... 25¢ 23¢ 22¢ 21¢ 21¢  
 Neponset ..... 23¢ 21¢ 20¢ 19¢ 18¢ 40¢  
 Putnam ..... 23¢ 21¢ 20¢ 19¢ 18¢ 33¢ 4¢  
 Vulcan ..... 25¢ 23¢ 22¢ 19¢ 18¢ 25¢

**Picture—**

Brass Head, 1 1/2 2 2 1/2 3 1/2 in.  
 .90 .95 1.00 1.05 1.10 gro.  
 Por. Head. .85 .90 .95 1.10 1.15 gro.

**Nippers, See Pliers and Nippers.****Nut Crackers—**

See Crackers, Nut.

**Nuts—List Feb. 1, 1899.**

List Feb. 1, '99.  
 Cold Punched. Off  
 Mfrs. or U. S. Standard. list.  
 Hexagon, plain ..... 4.50 5.00  
 Square, plain ..... 4.50 5.00  
 Square, C. T. & R. .... 4.70 4.90  
 Hexagon, C. T. & R. .... 5.20 5.30  
 Hot Pressed:  
 Mfrs. U. S. or Nar. Gauge Stan'd.  
 Square ..... 5.10 5.20  
 Hexagon ..... 5.50 5.60

**Oakum—**

Best or Government ..... lb. 5¢ 4¢  
 Navy ..... lb. 4¢ 3¢  
 U. S. Navy ..... lb. 5¢ 4¢  
 Plumbers' Spun Navy ..... 5¢ 4¢  
 In carload lots 1/4 lb. off f.o.b. New York.

**Oil Tanks—See Tanks, Oil.****Oilers—**

Brass and Copper ..... 60¢ 10¢ 60¢  
 Tin or Steel ..... 70¢ 70¢ 10¢  
 Zinc ..... 70¢ 70¢ 10¢  
 Malleable, Hammers' Improved, No. 1, \$3.60; No. 2, \$4; No. 3, \$4.40 per doz. 20¢  
 Malleable, Hammers' Old Pattern, same list ..... 50¢ 10¢  
 Wilmot & Hobbs Mfg. Co. .... 70¢ 10¢ 75¢

**Openers, Can—**

French ..... doz. 55¢  
 Iron Handle ..... doz. 60¢ 75¢  
 National, per gro. .... \$1.75 \$2.00  
 Sardine Scissors ..... per doz. \$2.00 \$2.10  
 Sprague, Iron or Wood Handles ..... per doz. 40¢ 45¢  
 Stowell's ..... 75¢ 10¢

**Packing—****Rubber—**

Standard, fair quality ..... 70¢ 10¢ 75¢  
 Inferior quality ..... 75¢ 10¢ 80¢  
 Extra ..... 60¢ 5¢ 60¢ 10¢ 5¢  
 Jenkins' Standard, 1/2 80¢ ..... 25¢ 25¢ 5¢

**Miscellaneous—**

American Packing ..... 9¢ 10¢ lb.  
 Cotton Packing ..... 13¢ 14¢ lb.  
 Italian Packing ..... 10¢ 11¢ lb.  
 Jute ..... 5¢ 5¢ 4¢ lb.  
 Russia Packing ..... 12¢ 13¢ lb.

**Pails—****Creamery—**

S. S. & Co., with gauges. No 1 \$5.25;  
 No. 2, \$5.50 per doz. 15¢

**Galvanized—**

Inch. .... 10 12 14  
 Water, Standard, gro. .... \$18.00 \$21.00 \$24.00  
 Water, Competition, gro. .... 17.00 19.50 22.00  
 Fire, gro. .... 22.00 25.00 28.00  
 Well, gro. .... 23.00 25.00 27.00

**Pans—****Dripping—**

Large Sizes ..... lb. 4 4 1/2¢  
 Small Sizes ..... lb. 4 1/2 5¢

**Fry—**

Standard List ..... 80¢ 80¢ 10¢

**Roasting and Baking—**

Columbian, S. S. & Co., Nos. 5, per doz. \$10; 10, \$11.50; 20, \$13; 30, \$15 ..... 60¢  
 Simplex No. 08, per doz. \$7.00; No. 09, \$8.50 ..... 60¢

**Paper—****Building Paper—**

Per roll  
 Rosin Sized Sheathing: 500 sq. ft.  
 Light wt., 20 sq. ft. to lb. \$0.55 @ 0.40  
 Medium wt., 12 sq. ft. to lb. .... \$0.55 @ 0.60  
 Heavy wt., extra quality, \$0.95 @ 1.05  
 Barrett's Water Proof Sheathing, \$1.35 @ 1.75  
 Medium Grades Water Proof Sheathing, \$0.80 @ 1.25  
 Deafening Felt, 9, 6 and 1 1/2 sq. ft. to lb., ton ..... \$40.00 @ 41.00

**Tarred Paper.**

1 ply (roll 300 sq ft.), ton \$35.00 @ \$7.00  
 2 ply, heavy, roll 100 sq. ft. .... 90¢  
 2 ply, light, roll 100 sq. ft. .... 75¢  
 3 ply, heavy, roll 100 sq. ft. .... \$1.20  
 3 ply, light, roll 100 sq. ft. .... \$1.00

**Sand and Emery—**

List April 19, 1888 ..... 50¢ 10¢ 5¢ 60¢ 5¢

**Parers—****Apple—**

Advance ..... per doz. \$4.50  
 Baldwin ..... per doz. \$5.00  
 Bonanza ..... each \$5.00  
 Dandy ..... each \$7.50  
 Eureka, 1888 ..... each \$16.00  
 Family Bay State ..... per doz. \$12.00  
 Hudson's 11 ft. Star ..... per doz. \$4.00  
 Hudson's Ro king table ..... per doz. \$5.50  
 Improved Bay State per doz. \$27.00 @ 30.00  
 New Lightning ..... per doz. \$5.50  
 Reading 78 ..... per doz. \$4.00  
 Reading 78 ..... per doz. \$7.00  
 Turn Table ..... per doz. \$4.50  
 White Mountain ..... per doz. \$4.00

**Potato—**

Saratoga ..... per doz. \$5.50  
 White Mountain ..... per doz. \$4.50

**Paris Green—**

Arsenic, kegs or casks, lb. 12 @ 12¢ 5¢  
 Kegs of 100 to 175 pounds ..... lb. 12¢ @ 13¢  
 Kits of lb. 28 and 56 pounds ..... lb. 13¢ @ 14¢  
 Paper boxes 2 to 5 pds., lb. 13¢ @ 14¢  
 Paper boxes 1 pound, lb. 14¢ @ 14¢  
 Paper boxes 1/2 pound, lb. 15¢ @ 15¢  
 Paper box 3/4 pound, lb. 16¢ @ 16¢  
 Note: These prices are sometimes shaded by jobbers.

**Picks and Mattocks—**

List Feb. 23, 1899 ..... 60¢ 10¢ 60¢ 10¢ 10¢

**Pinking Irons—**

See Irons, Pinking.

**Pins—****Escutcheon—**

Brass ..... 60¢ 60¢ 5¢  
 Iron, list Nov. 11, '85 ..... 60¢ 60¢ 5¢

**Pipe, Cast Iron Soil—****Factory Shipments.**

Standard, 2-6 in. .... 60¢  
 Extra Heavy, 3-6 in. .... 65¢  
 Fittings ..... 60¢ 10¢ 10¢ 70¢

**Pipe, Wrought—****Factory Shipments.**

List February, 1899.  
 Plain and Galvanized:  
 Carload lots ..... 50¢ 10¢ 10¢ 5¢  
 Less than carload lots ..... 50¢ 10¢ 10¢  
 Screw and Socket Casing ..... 40¢  
 Inserted Joint Casing ..... 35¢  
 Cold Drawn Seamless Steel Tubing ..... 60¢

**Planes and Plane Irons—****Wood Planes—**

Molding ..... 40¢ 2 1/2¢ @ 40¢ 5¢  
 Bench, First quality ..... 45¢ 10¢ @ 45¢ 10¢ 5¢  
 Bench, Second quality ..... 50¢ 10¢ @ 50¢ 10¢ 5¢  
 Bailey's (Stanley R. & L. Co.) ..... 50¢ 10¢ 10¢ 50¢ 10¢ 10¢ 10¢  
 Gage Self Setting ..... 35¢

**Iron Planes—**

Bailey's (Stanley R. & L. Co.) ..... 50¢ 10¢ 10¢ 50¢ 10¢ 10¢ 10¢  
 Chaplin's Iron Planes ..... 50¢ 10¢  
 Miscellaneous Planes (Stanley R. & L. Co.) ..... 25¢ 10¢ 10¢ 25¢ 10¢ 10¢ 10¢  
 Sargent's ..... 60¢ 10¢ 10¢ 70¢

**Plane Irons—**

Standard List ..... 30¢ 5¢ @ 30¢ 10¢  
 Buck Bros. .... 30¢  
 Butcher's ..... \$5.00 @ 5.25 10¢  
 Stanley R. & L. Co. .... 50¢ 10¢ 50¢ 10¢ 10¢  
 L. & J. J. White ..... 20¢ 5¢ 25¢

**Plates—**

Felloe ..... lb. 3 1/2¢ @ 3 1/2¢  
 Self-Sealing Pie Plates (S. S. & Co.), per doz. \$2.00 ..... 50¢

**Pliers and Nippers—**

Gas. .... 7 8 9 10-in.  
 Best ..... \$5.35 \$6.00 \$6.50 doz.  
 Good ..... \$2.50 2.75 3.00 3.50 doz.  
 Acme Nippers ..... 50¢

**Bernard's:**

Parallel Pliers, &c. .... 33¢ 4¢  
 Paragon Pliers ..... 50¢  
 Lodi Pliers ..... 50¢  
 Elm City Face Pliers ..... 35¢  
 Button's ..... 70¢ 10¢ 70¢ 10¢ 5¢  
 Heller's Farriers' Pincers and Pools ..... 40¢ 40¢ 5¢  
 Morrill's Parallel, per doz. \$12.00 ..... 30¢ 5¢  
 P. S. & W. Cast Steel ..... 50¢ 50¢ 5¢  
 P. S. & W. Tinnars' Cutting Nippers, add 6¢ ..... 10¢  
 Utica Drop Forge & Tool Co.:  
 Combination Pliers ..... 40¢ 5¢  
 Side Cutting Pliers ..... 40¢ 5¢  
 Hall Patent Nipper ..... 40¢ 5¢  
 Round and Flat Nose Pliers ..... 40¢ 5¢  
 End Cutting Pliers ..... 40¢ 5¢  
 Royal Blue ..... 40¢ 5¢  
 Glass Pliers ..... 40¢ 5¢  
 Burner Pliers ..... 40¢ 5¢

**Plumbs and Levels—**

Plumbs and Levels ..... 70¢ 10¢ 10¢ 75¢ 10¢ 10¢

Disston's ..... 70¢  
 Pocket Levels ..... 70¢ 10¢ 10¢ 75¢ 10¢ 10¢  
 Stanley R. & L. Co. .... 70¢ 10¢ 10¢ 70¢ 10¢ 10¢  
 Stanley's Duplex ..... 25¢ 10¢ 25¢ 10¢ 10¢  
 Woods' Extension ..... 33¢ 4¢

**Poachers, Egg—**

Buffalo Steam Egg Poachers, per doz., No. 1, \$3.00; No. 2, \$9.00; No. 3, \$9.00; No. 4, \$12.00 ..... 50¢

**Points, Glaziers'—**

Bulk and 1 lb. papers, lb. 10¢ @ 11¢ 4¢  
 1/2 lb. papers ..... lb. 11¢ @ 12¢  
 1/4 lb. papers ..... lb. 11¢ @ 12¢

**Pokes, Animal—**

Ft. Madison Hawkeye ..... per doz. \$3.00  
 Ft. Madison, Western ..... per doz. \$3.50  
 Metallic Horse Poke ..... per doz. \$3.00

**Police Goods—**

Manufacturers' Lists ..... 25¢ 25¢ 10¢

**Polish—Metal—**

Prestoline Liquid, No. 1 (1/2 pt.), per doz. \$3.00; No. 2 (1 qt.), \$9.75 ..... 40¢  
 Prestoline Paste ..... 38¢ 40¢  
 U. S. Metal Polish Paste, 3 oz. boxes, per doz. 50¢; 1/2 gr. \$4.50; 1/2 lb. boxes, per doz. \$1.25; 1 lb. boxes, per doz. \$2.25.  
 U. S. Liquid, 8 oz. cans, per doz. \$1.25; 1 lb. cans, per doz. \$2.25.  
 Barkeepers' Friend Metal Polish, per doz. \$1.75; 1 lb. cans, per doz. \$1.50  
 Wynn's White Silk, 1/2 pt. cans, per doz. \$1.50

**Stove—**

Joseph Dixon's, per gr. \$5.75 ..... 10¢  
 Dixon's Plumbago ..... per gr. \$5.75  
 Fireside ..... per gr. \$2.50  
 Gem, per gr. \$4.50 ..... 10¢  
 Japanese ..... per gr. \$3.50  
 Jet Black ..... per gr. \$3.50  
 Wynn's Black Silk, 5 lb. pails, per doz. \$1.25  
 Wynn's Black Silk, 1/2 lb. box, per doz. \$1.00  
 Wynn's Black Silk, 5 oz. box, per doz. \$0.75  
 Wynn's Black Silk, 8 oz. liq., per doz. \$1.00

**Poppers, Corn—****Round or Square:**

1 qt. .... gro. \$5.00  
 1 1/2 qt. .... gro. 8.00  
 2 qt. .... gro. 10.00  
 Quincey Corn Popper, 1 qt., per gr. \$17.00; 2 qt., \$22.00.

**Post Hole and Tree Augers and Diggers—**

See also Diggers, Post Hole, &amp;c.

**Potato Parers—**

See Parers, Potato.

**Pots—****Glue—**

Enameled ..... 40¢ 10¢ 5¢ 50¢  
 Tinned ..... 40¢ 5¢ 40¢ 10¢

**Powder—****In Canisters:**

Duck, 1 lb. each ..... 16¢  
 Fine Sporting, 1 lb. each ..... 75¢  
 Rifle, 1/2 lb. each ..... 15¢  
 Rifle, 1 lb. each ..... 25¢  
 In Kegs:  
 Duck, 6 1/2 lb. kegs ..... \$3.25  
 Duck, 12 1/2 lb. kegs ..... \$4.25  
 Duck, 25 lb. kegs ..... \$5.00  
 Rifle, 6 1/2 lb. kegs ..... \$1.25  
 Rifle, 12 1/2 lb. kegs ..... \$2.25  
 Rifle, 25 lb. kegs ..... \$4.00

**King's Smokeless:**

Keg (25 lb. bulk) ..... \$20.00  
 Half Keg (12 1/2 lb. bulk) ..... \$10.25  
 Quarter Keg (6 1/2 lb. bulk) ..... \$5.25  
 Canister (1 lb. bulk) ..... \$0.90  
 Case, 1 lb. Canisters (50 lb. bulk) ..... \$45.00  
 Half Case, 1 lb. Canisters (25 lb. bulk) ..... \$22.75  
 King's Semi-Smokeless:  
 Keg (25 lb. bulk) ..... \$10.00  
 Half Keg (12 1/2 lb. bulk) ..... \$5.25  
 Quarter Keg (6 1/2 lb. bulk) ..... \$2.75  
 One Pound Can, bulk ..... \$0.50

**Presses—****Fruit and Jelly—**

Enterprise Mfg. Co. .... 30¢ 25¢

**Pruning Hooks and Shears—See Shears.****Pullers, Nail—**

Crown, per doz. \$13.00 ..... 50¢  
 Crown Prince, per doz. \$15.00 ..... 50¢  
 Giant, No. 1, per doz. \$18.00; No. 2, \$18.50;  
 No. 3, \$19.50 ..... 40¢  
 National, per doz. \$24.00 ..... 40¢  
 Pelican



**Pulleys—**

Hay Fork, Swivel or Solid Eye..... doz. \$1.80  
 Hay Fork, Stowell's Anti-Friction, 5-in. Wheel, # doz. \$12.00..... 40%  
 Hay Fork, Stearns' No. 15 & 25 # doz. \$1.75  
 Hay Fork, Stearns' Nos. 35 & 45 # doz. \$2.00  
 Hay Fork, Stearns' Nos. 55 & 65..... \$2.25  
 Hot House, Awning, &c..... 60¢@10¢  
 Japanned Clothes Line..... 60¢@10¢  
 Japanned Screw..... 70¢@10¢  
 Japanned Side..... 70¢@10¢  
 Stowell's Ceiling or End, Anti-Friction 40%  
 Stowell's Dumb Walter, Anti-Friction 50%  
 Stowell's Electric Light..... 38%  
 Stowell's Slide, Anti-Friction..... 50%  
 Sash (Auger Mortise):  
 Common Sense, 1 1/4 in., # doz., 18¢;  
 2 in., 20¢.  
 Empire..... 1 1/4 in., 17¢; 2 in., 19¢  
 L. C..... 1 1/4 in., 16¢; 2 in., 17¢  
 Ideal No. 13..... 1 1/4 in., # doz., 15¢  
 Improved..... 1 1/4 in., 17¢; 2 in., 19¢  
 Niagara..... 1 1/4 in., 16¢; 2 in., 17¢  
 No. 20, Troy..... 1 1/4 in., 15¢; 2 in., 17¢  
 Star..... 1 1/4 in., 16¢; 2 in., 17¢  
 Acme..... 1 1/4 in., 18¢; 2 in., 19¢  
 Tackle Blocks—See Blocks.

**Pumps—**

Cistern..... 60¢@5¢  
 Pitcher Spout..... 75¢  
 Pump Leathers, all sizes..... gro. \$6.00  
 Flint & Walling & Fast Mail..... 60¢  
 Myer's Pumps, low list..... 50¢  
 Contractors' Rubber Diaphragm Non-chokable, B. & L. Block Co..... 20%

**Punches—**

Revolving..... doz. \$3.50@5.75  
 Saddlers' or Drive, good..... doz. 60¢@65¢  
 Spring, good quality..... \$1.70@1.80  
 Bemis & Call Co.'s Cast Steel Drive, 30 & 35  
 Bemis & Call Co.'s Check..... 55¢  
 Bemis & Call Co.'s Spring..... 50¢@55¢  
 Bemis & Call Co.'s Springfield Socket..... 65¢  
 Niagara Hollow Punches..... 45¢  
 Niagara Solid Punches..... 55¢  
 Spring, Leach's Pat..... 15¢  
 Steel Screw, B. & L. Mfg. Co..... 50¢  
 Tinnars' Hollow, P. S. & W. Co..... 20¢@25¢  
 Tinnars' Solid, P. S. & W. Co., # doz., \$1.44

**Rail—****Barn Door, &c.—**

Barn Door, Light, 1/2 in., 1/4 5/8 3/4  
 100 feet..... \$1.50 \$1.95 \$2.60  
 B. D., for N. E. Hangers:  
 Small, Med. Large.  
 100 feet..... \$1.60 2.00 2.50  
 Sliding Door, Bronzed Wrt Iron, ft. 6 1/2  
 Sliding Door, Iron Painted, 2 1/4 @ 2 1/2 c  
 Sliding Door, Wrought Brass, 1 1/4  
 in..... lb. 36¢..... 30¢  
 Cronk's Double Braced Steel Rail, #  
 foot..... \$3.40  
 Lanes' O. N. T., # 10 ft..... \$3.40  
 Lanes' Standard, # ft..... \$3.40  
 McKinney's None Better..... # ft. 2 1/4  
 McKinney's Standard..... # ft. 3 1/4  
 Moore's, Wrt. Bracket, Steel..... \$2.40  
 Stowell's Steel Rail..... 35¢@10¢  
 Terry's Steel Rail..... # ft. 3 1/4

**Rakes—**

1895 or old list often used:  
 C. S. Rakes..... 60¢@10¢  
 Malleable Rakes..... 70¢@10¢  
 Association List:  
 Cast Steel..... 75¢@5¢  
 Malleable..... 70¢@10¢  
 Fort Madison Red Head Lawn..... \$3.00  
 Fort Madison Blue Head Lawn..... \$2.65

**Rasps, Horse—**

Diston's No. 4..... 75¢  
 New Nicholson Horse Rasp..... 70¢@10¢  
 See also Files.

**Razor Stropps—**

See Stropps, Razor.

**Reels—****Fishing—**

Hendryx Aluminum, German Silver, Gold, Bronze, Silver, Rubber, Populor and Salmon, Single Action, Multiplying and Quadruple, all sizes..... 25¢  
 Hendryx Single Action Series, 102 P and PN, 202 P and PN, 304 P and PN, 00304 P and PN, 502 and 502N, 802 and 802N, 02084N, Competitor, 50¢  
 Hendryx Multiplying and Quadruple Series, 3004N and PN, 4N and PN, 2904N, 2904P and PN, 002904PN, 0924 and 0924N, 5009N and PN..... 40¢@10¢

**Registers—**

For points on Mississippi River and East:  
 Black Japanned..... 40%  
 White Japanned..... 30%  
 Bronzed Finishes..... 40%  
 Nickel Plated..... 40%  
 Electro Plated in Brass, &c..... 40%  
 White Porcelain..... 30%  
 Solid Brass and Bronze Metal..... 25%  
 Note—Higher prices are quoted in territory further West.

**Rings and Ringers—****Bull Rings—**

Steel..... \$0.50 1.00 1.05 doz.  
 Copper..... 1.10 1.80 1.85 doz.

**Hog Rings and Ringers—**

Hill's Rings..... gro. boxes, \$3.25@3.50  
 Hill's Ringers, G. I..... doz. 50¢@55¢  
 Blair's Rings..... # gro. \$3.75@4.00  
 Blair's Ringers..... # doz. 55¢@60¢  
 Brown's Rings..... # gro. \$3.75@4.00  
 Brown's Ringers..... # doz. 55¢@60¢  
 Perfect Rings..... # gro. \$7.00@7.50  
 Perfect Ringers, # doz..... 75¢@80¢

**Rivets and Burrs—**

Copper..... 40¢@10¢@50¢  
 Iron or Steel:  
 Tinnars'..... 60¢@10¢@60¢@10¢  
 Miscellaneous..... 60¢@10¢@60¢@10¢

**Rivet Sets—See Sets.****Roasting and Baking**

Pans—See Pans, Roasting and Baking.

**Rollers—**

Acme, Stowell's Anti-Friction..... 50¢@10¢  
 Barn Door, Sargent's list, 60¢@10¢@70¢  
 Lane's Stay..... 38¢@45¢  
 Stowell's Barn Door Stay..... # doz. \$1.00

**Rope—**

Manila, 7-16 in. and larger.  
 Manila..... lb. 9 3/4 @ 10 c  
 Manila, 1/4 and 5-16 in. lb. 10 3/4 @ 11 c  
 Manila, Tarred Rope, 15  
 thread..... lb. 9 3/4 @ 10 c  
 Manila Hay Rope Med'm lb. 9 3/4 @ 10 c  
 Sisal, 7-16 in. and larger, lb. 8 @ 8 1/2 c  
 Sisal..... 9 3/4 inch, lb. 8 1/2 @ 8 1/2 c  
 Sisal, 1/4 and 5-16 in. lb. 9 @ 9 1/2 c  
 Sisal, Hay Rope, 2 to 10  
 ply..... lb. 8 @ 8 1/2 c  
 Sisal, Med'm Lath Yarn, lb. 7 1/2 @ 7 1/2 c  
 Cotton Rope:  
 Best, 1/4 in. and larger, lb. 13 @ 14 c  
 Med'm, 1/4 in. and larger..... lb. 10 @ 12 c  
 Com., 1/4 in. and larger, lb. 8 @ 10 c  
 Jute Rope..... lb. @ 6 c

**Wire Rope—**

List July 1, '99..... 30¢@2 1/2 %

**Ropes, Hammock**

Covert Saddlery Works..... 70%

**Rules—**

Bowwood..... 75¢@10¢@10¢@75¢@10¢@10¢  
 Ivory..... 40¢@10¢@10¢@40¢@10¢@10¢  
 Luffkin's Steel..... 50¢@10¢  
 Luffkin's Lumber..... 50¢@10¢  
 Stanley R. & L. Co.:  
 Boxwood..... 75¢@10¢@75¢@10¢@10¢@10¢  
 Ivory..... 40¢@10¢@40¢@10¢@10¢@10¢

**Sad Irons—See Irons, Sad.****Sand and Emery Paper**

and Cloth—  
 See Paper and Cloth.

**Sash Cords—See Cord, Sash.****Sash Locks—See Locks, Sash.****Sash Weights—**

See Weights, Sash.

**Sausage Stuffers or Fillers—**

See Stuffers or Fillers, Sausage.

**Saws—**

Note.—Extra 5@10% often given on Circulars Cross Cuts, &c. and extra 5@7 1/2 % on Hand, Butcher, &c.

Atkins' Circular..... 50%  
 Atkins' Band..... 50%  
 Atkins' Cross Cuts..... 40%  
 Atkins' Mulay, Mill and Drag..... 50%  
 Atkins' One-Man Saw..... 40¢@10¢  
 Atkins' Wood Saws..... 40¢@10¢  
 Atkins' Hand, Compass, &c..... 40¢  
 Diston Circular Sash and Lusterie  
 Tooth..... 50%  
 Diston Band 2 to 14 in. wide..... 60%  
 Diston Band 1/4 to 1 1/4..... 70%  
 Diston Crosscut..... 50%  
 Diston Narrow Crosscut..... 55%  
 Diston Mulay, Mill and Drag..... 50%  
 Diston Framed Woodsaws..... 35%  
 Diston Woodsaw Blades..... 40%  
 Diston Woodsaw Rots..... 25%  
 Diston Handsaws, Nos. 12, 99, 9, 10,  
 1100, D8, 120, 77, 8..... 25%  
 Diston Hand Saws, Nos. 7, 107, 10 1/2,  
 3, 1, 0, 00, Combination..... 30%  
 Diston Compass, Keyhole, &c..... 25%  
 Diston Butcher Saws and Rots..... 35%  
 C. E. Jennings & Co.'s..... 25¢@30¢@5¢  
 Peace Circular and Mill..... 45¢@10¢  
 Peace Cross Cuts, list Jan. 1, '93, 45¢@10¢  
 Peace Hand, Panel and Rip..... 25¢@10¢  
 Richardson's Circular and Mill..... 45¢@10¢  
 Richardson's X Cuts, list Jan. 1, '93,  
 45¢@10¢  
 Richardson's Hand, &c..... 25¢@10¢  
 Simonds' Circular Saws..... 45¢@50¢  
 Simonds' Crescent Ground Cross Cut  
 Saws..... 45¢@50¢  
 Simonds' One-Man Cross Cuts..... 40¢@10¢  
 Simonds' Gang Mill, Mulay and Drag  
 Saws..... 45¢@45¢

**Hack Saws—**

Diston Concrete Blades..... 25%  
 Disson Keyholes..... 30%  
 Diston Hack Saw Frames..... 30%  
 Griffin's complete..... 50¢@50¢@10¢  
 Griffin's Hack Saw Blades..... 50¢@50¢@1¢  
 Star Hack Saws and Blades..... 15¢@10¢

**Scroll—**

Barnes' No. 7, #15..... 25%  
 Barnes' Velocipede Scroll Saw, #15..... 20%  
 Barnes' Scroll Saw Blades..... 40%  
 Luster, complete, #10.00..... 15¢@10¢  
 Rogers, complete, #4.00..... 15¢@10¢

**Saw Frames—**

See Frames, Saw.

**Saw Sets—See Sets, Saw.****Saw Tools—See Tools, Saw.****Scale Beams—**

See Beams, Scale.

**Scales—**

Family, Turnbull's..... 30¢@30¢@10¢  
 Hatch, Counter, No. 171, good  
 quality..... doz. \$17.00@18.00  
 Hatch, Tea, No. 161..... doz. \$5.75@6.00  
 Union Platform, Plain..... \$2.00@2.10  
 Union Platform, Striped..... \$2.15@2.25  
 Chatillon's Eureka..... 25%  
 Chatillon's Favorite..... 40%  
 Chatillon's Grocers' Trip Scales..... 50%  
 Pelouze Scales—Family, Candy,  
 Grocers and Postal..... 33%  
 "The Standard" Portables..... 40¢@50¢  
 "The Standard" R. R. and Wagon..... 60%

**Scrapers—**

Box, 1 Handle..... doz. \$2.00  
 Box, 2 Handle..... doz. \$3.00@4.00  
 Ship, No. 1, doz. \$3.50; No. 2,  
 \$2.25@3.40  
 Adjustable Box Scraper (B. R. & L. Co.)  
 \$6.00..... 40¢@10¢  
 Foot, W. E. Pratt Mfg. Co..... # doz. \$1.15@1.25  
 Ship, R. I. Tool Co..... 10%

**Screen Window and Door**

Frames—See Frames.

**Screw Drivers—**

See Drivers, Screw.

**Screws—**

Bench and Hand—  
 Bench, Iron..... doz. 1 in., \$2.30;  
 1 1/4, \$2.65; 1 1/2, \$3.00  
 Bench, Wood, Beech..... doz. \$2.00@2.20  
 Hand, Wood..... 30¢@10¢@40¢  
 Hand, Grand Rapids..... 35%

**Coach, Lag and Hand Rail—**

Lag, Common Point, list Jan. 30,  
 '95..... 70¢@15¢@70¢@15¢@10¢  
 Coach and Lag, Gimlet Point, list  
 Jan. 30, '95..... 70¢@10¢@70¢@10¢@10¢  
 Hand Rail, list Jan. 1, '91..... 82 1/2 %

**Jack Screws—**

Millers Falls..... 50¢@10¢@10¢  
 Millers Falls, Roller..... 50¢@10¢  
 P. S. & W..... 40¢@40¢@10¢  
 Sargent..... 70¢@10¢@10¢  
 Stearns..... 40¢@10¢

**Machine—**

List Jan. 1, '98.

Flat or Round Head, Iron..... 60%  
 Flat or Round Head, Brass..... 60%

**Set and Cap—**

Set (Iron or Steel)..... 75¢@10¢@75¢@10¢@5¢  
 Sq. Hd. Cap..... 70¢@10¢@70¢@10¢@5¢  
 Hex. Hd. Cap..... 70¢@10¢@70¢@10¢@5¢

**Wood—**

List Nov. 10, 1898. Discounts  
 adopted June 28, '99.  
 Flat Head, Iron..... 82 1/2 %  
 Round Head, Iron..... 80%  
 Flat Head, Brass..... 77 1/2 %  
 Round Head, Brass..... 75 1/2 %  
 Flat Head, Bronze..... 72 1/2 %  
 Round Head, Bronze..... 70%  
 Drive Screws..... 45%  
 Note.—An extra 5 or 10% is often  
 given.

**Scroll Saws—See Saws, Scroll.****Scythes—**

Grass and Grain..... 50¢@10¢

**Scythe Snaths—**

See Snaths, Scythe.

**Seeders—**

Raisin..... 25¢@30%

**Sets—****Awl and Tool—**

Brad Awl and Tool Sets:  
 Wood Hdl., 10 Awls..... doz. \$2.00  
 Wood Hdl., 14 Awls, 6 Tools.....  
 doz. \$3.25@2.40

Alken's Sets, Awls and Tools:  
 No. 20, # \$10.00, 60¢@10¢@10¢@5¢  
 Fray's Adj. Tool H'dls., Nos. 1, #12; 2,  
 #18; 3, #12; 4, #9; 5, #7..... 50%  
 Millers Falls Adj. Tool H'dls., No. 1,  
 #12; No. 4, #12; No. 5, #18..... 15¢@10¢  
 Stanley's Excelsior:  
 No. 1, \$7.50; No. 2, \$4.00; No. 3,  
 \$5.50..... 40¢@10¢@40¢@10¢@5¢

**Garden Tool Sets—**

Ft. Madison Rakes, Shovel and Hoe.....  
 # doz. \$9.00

**Nail—**

Round, assorted..... gro. \$3.00@3.50  
 Octagon..... gro. \$4.00@4.75  
 Buck Brothers..... 27 1/2 %  
 Cannon's Diamond Point, # gr. \$12..... 25%  
 Steel's Corrugated Cup Pt..... 60%  
 Snell's Knurled Cup Pt..... 60%

**Rivet—**

Regular list..... 70¢@5¢@75%

**Saw—**

Alken's Genuine..... # doz. \$4.50@5.00  
 Alken's Imitation..... # doz. \$3.00@3.10  
 Atkin's Criterion..... # doz. \$3.00  
 Atkin's Adjustable..... # doz. \$4.00  
 Bemis & Call Co.'s Cross Cut..... 30¢@5¢  
 Bemis & Call Co.'s Plate..... 20%  
 Bemis & Call Spring Hammer..... 30¢@5¢  
 Diston's Star and Moon ch..... 25%  
 Hammer, Bemis & Call Co.'s new Pat. 45%

Morrill's No. 1, \$15.00..... 40¢@20¢  
 Nos. 3 and 4, Cross Cut, \$23.00, 40¢@20¢  
 No. 5, Mill, \$31.00..... 40¢@20¢  
 No. 10, \$15.50..... 40¢@20¢  
 No. 11, \$16.00..... 40¢@20¢  
 Talntor Positive, # doz. \$18..... 60%

**Sharpeners, Knife—**

Tanite Mills # gross, \$14.40..... 25¢@38%  
 Shaves, Spoke—

Iron..... doz. \$1.00@1.25  
 Wood..... doz. \$1.75@2.00  
 Bailey's (Stanley R. & L. Co.)..... 50¢@10¢  
 Goodell's, # doz. \$9.00..... 15¢@10¢  
 Stearns..... 40¢@10¢

**Shears—**

Cast Iron..... 7 8 9 in.  
 Best..... \$16.00 18.00 20.00 gro.  
 Good..... \$13.00 15.00 17.00 gro.  
 Cheap..... \$9.00 10.00 11.00 gro.

**Straight Trimmers, &c.—**

Best quality, Jap..... 70¢@5¢@70¢@10¢  
 Nickel..... 60¢@5¢@60¢@10¢  
 Fair qual. Jap..... 80¢@10¢@80¢@10¢  
 Nickel..... 75¢@5¢@75¢@10¢

**Tailors' Shears—**

Acme Cast Shears..... 40¢@40¢  
 Heinisch's Tailors' Shears..... 40¢@40¢  
 National Cutlery Co., Nickel..... 60¢@10¢  
 National Cutlery Co., En. Hdl., 70¢@1¢  
 Seymour's, J..... 70¢@70¢  
 Seymour's Nickel..... 60¢@60¢  
 Seymour's Tailors' Shears..... 40%  
 Wilkinson's Hedge..... 50%  
 Wilkinson's Sheep..... 15%

**Tinnars' Snips—**

Forged Handles, Steel Blades, 20¢@10¢  
 Malleable Handles, Laid with Steel..... 40%

**Forged Handles, Steel Blades, Berlin.**

40¢@10¢

**Niagara Snips..... 40%**

Seymour's..... 40¢@40¢

**Pruning Shears and Tools—**

Diston's Combined Pruning Hook  
 and Saw, # doz. \$18.00..... 25¢@25¢@10¢  
 Diston's Pruning Hook, # doz. \$12.00..... 25¢@25¢@10¢

John T. Henry Mfg. Company:  
 Pruning Shears, all grades..... 50¢@5¢  
 Orange Shears..... 50¢@30¢  
 Grape..... 50¢@10¢  
 Tree Pruners..... 75%  
 P. S. & W. Co..... 60%  
 Seymour's..... 80¢@10¢@70¢@5¢

**Sheaves—Sliding Door—**

Stowell's Anti-Friction..... 50%  
 Patent Roller..... 60¢@10¢@60¢@10¢  
 Patent Roller Hatfield's, Sargent's list,  
 80¢@10¢@80¢@10¢  
 Reading..... 70¢@10¢@75%  
 R. E..... 60¢@60¢@10¢  
 Wrightville, Hatfield Pattern..... 80¢@10¢

**Sliding Shutter—**

Reading list..... 70¢@10¢@75%  
 R. E..... 60¢@60¢@10¢  
 Sargent's list..... 60¢@60¢@10¢

**Shells—****Shells, Empty—**

Brass Shot Shells, Club, Rival, Climax..... 65¢@2¢  
 Brass Shot Shells, first quality..... 60¢@2¢  
 First quality 4, 8, 10 and 12 gauge..... 25¢@10¢  
 First quality Rival, Club and Climax  
 brands, 14, 16 and 20 gauge (\$7.50  
 list)..... 20¢@10¢@2¢  
 New Victor, all gauges..... 15¢@2¢  
 Quicks Shot and Lea..... 33¢@5¢@2¢  
 Smokeless brand, 12, 10, 16 gauge..... 25¢@10¢@2¢  
 Star, Club, Rival and Climax Brands..... 33¢@10¢@2¢  
 Trap brand, 12 and 10 gauge, 33¢@10¢@2¢  
 Prim-o-Club, Blu. Rival, Yellow  
 Rival and New Climax..... 20¢@5¢@2¢

**Shells, Loaded—**

Loaded with Black Powder..... 40¢@5¢@40¢@10¢  
 Loaded with Nitro Powder..... 40¢@10¢@5¢@40¢@10¢@10¢  
 Loaded with Semi-Smokeless Pow-  
 der..... 40¢@5¢@40¢@10¢

**Ship Tools—**

L. & I. J. White..... 25%

**Shoes, Horse, Mule, &c.—**

Factory Shipments:  
 No. 2 and larger..... per 100 lbs., \$5.35

**Shot—**

Drop, up to B, 25-lb. bag..... \$1.35@1.40  
 Drop, up to B, 5-lb. bag..... .30  
 Drop, B and larger, 25-lb. bag..... 1.60@1.65  
 Drop, B and larger, 5-lb. bag..... .35  
 Buck, 25 lb. bag..... \$1.60@1.65  
 Buck, 5-lb. bag..... .35  
 Chilled, 25 lb. bag..... \$1.0@1.65  
 Dust Shot, 25 lb. bag..... 2.00  
 Dust Shot, 5-lb. bag..... .25  
 These prices are often shaded 5¢@1

**Shovels and Tongs—**

Brass Head ..... 60¢ 10¢ 60¢ 10¢ 10¢  
 Iron Head ..... 60¢ 10¢ 60¢ 10¢ 10¢

**Sieves and Sifters—**

Hunter's Imitation... gro. \$5.00 @ 9.50  
 Buffalo Metallic, S. S. & Co., 7 gr.:  
 10 16 18 18 18 20  
 Blued... \$10.80 \$11.40 \$11.40 \$12.00  
 Tinned... 11.40 12.00 12.00 12.60  
 Ellipse... 7 gr. \$9.00 @ 9.50  
 Hunter's Genuine... 7 gr. \$10.00 @ 10.50  
 Shaker's (Barber's Pat.) Flour Sifters.  
 7 doz., \$2.00..... 35¢

**Sieves, Wooden Rim—**

Mesh 18, Nested, doz..... \$0.75 @ 0.80  
 Mesh 20, Nested, doz..... 85¢ @ .90  
 Mesh 24, Nested, doz..... 95¢ @ 1.00

**Sinks—****Cast Iron—**

Low list..... 65¢ @ 65¢ 5¢  
 NOTE.—The low list is now generally  
 used, but some jobs use high list.

**Wrought Steel—**

Columbus Galv'd and Enameled. 50¢ 10¢  
 Columbia, Painted..... 30¢ 10¢  
 L. & G..... 55¢ 10¢

**Skins, Wagon—**

Malleable Iron..... 75¢ @ 75¢ 10¢  
 Steel..... 85¢ @ 85¢ 10¢  
 L. I. & B. Co. Steel..... 45¢

**Slates—**

"D" Slates..... 50¢ @ 10¢ 50¢ 10¢ 10¢  
 Unexcelled Noiseless Slates.....  
 60¢ 5¢ 60¢ 5¢ 60¢ 5¢  
 Wire Bound..... 40¢ @ 10¢ 50¢  
 Double Slates, add \$1 case, net.

**Slaw Cutters—See Cutters.****Snaps, Harness—**

German..... 50¢ @ 50¢ 5¢  
 Covert Mfg. Co.:  
 Derby..... 45¢ 2¢  
 High Grade..... 45¢ 2¢  
 Jockey..... 45¢ 2¢  
 Trojan..... 45¢ 2¢  
 Covert's Saddlery Works:  
 Banner..... 75¢  
 Crown..... 70¢  
 Triumph..... 70¢  
 W. & E. T. Fitch:  
 Bristol..... 40¢ 10¢  
 Empire..... 50¢ 5¢  
 National..... 50¢ 5¢  
 Clipper..... 50¢ 10¢ 5¢  
 Champion..... 40¢ 10¢  
 Victor..... 60¢ 5¢  
 One do. Omaha W.:  
 Solid Steel..... 65¢ @ 65¢ 10¢  
 Solid Sw. Pat..... 55¢ @ 65¢ 10¢ 10¢  
 Sargent's Patent Guard.....  
 70¢ 10¢ 70¢ 10¢ 10¢

**Snaths—**

Scythe..... 55¢

**Snips, Tinner's—See Shears.****Soldering Irons—**

See Irons, Soldering.

**Spoke Trimmers—**

See Trimmers, Spoke.

**Spoons and Forks—**

Silver Plated—

Flat Ware..... 50¢ @ 10¢ 60¢ 10¢  
 Wm. Rogers Mfg. Co..... 50¢ 10¢

**Miscellaneous—**

German Silver..... 60¢ 10¢  
 Wm. Rogers Mfg. Co.:  
 18¢ German Silver..... 60¢  
 Rogers' Silver Metal..... 50¢ 10¢

**Springs—**

Door—

Gem (Coll)..... 20¢  
 Star (Coll)..... 30¢  
 Torrey's Rod, 39 in., 7 doz. \$1.10 @ 1.25  
 Warner's No. 1, 7 doz. \$1.50 @ 1.75  
 \$3.40..... 55¢ @ 55¢ 10¢  
 Victor (Coll)..... 69¢ 10¢ 60¢ 10¢ 5¢

**Carriage, Wagon, &c.**

1½ in. and wider... Blk. Hf Brt. Brt.  
 Tested and Temp 5 5¼ 5½ 5¾ lb  
 Oil Tested and  
 Tempered..... 6 6¼ 6½ 6¾ lb  
 Cliff's Bolster Springs..... 40¢ 2¢  
 Cliff's Seat Springs..... 40¢ 2¢

**Sprinklers, Lawn—**

Enterprise..... 25¢ @ 30¢  
 Philadelphia No. 1, 7 doz. \$12; No. 2,  
 \$15; No. 3, \$24..... 35¢

**Squares—**

Nickel plated... List May 1, '95.  
 Steel and Iron..... 70¢ @ 75¢ 10¢  
 Rosewood Hdl. Try Squares and T-  
 Bevels..... 60¢ @ 10¢ 70¢  
 Iron Hdl. Try Squares and T-Bevels,  
 10¢ @ 10¢ 10¢ 10¢

Diaton's Try Sq. and T-Bevels..... 60¢ 10¢  
 Winterbottom's Try and Miter..... 50¢ 10¢

**Squeezers—**

Lemon—

Wood, Common, gro., No. 0, \$5.00;  
 No. 1, \$6.50; No. 2, \$10.00.  
 Wood, Porcelain Lined:  
 Cheap..... doz. \$2.00 @ 2.75  
 Good grade..... doz. \$3.00 @ 3.50

Tinned Iron ..... doz \$0.80 @ 1.25  
 Iron, Porcelain Lined doz. \$3.25 @ 3.50  
 Jennings' Star..... 7 doz. \$1.85 @ 1.90  
 Kling..... 7 doz. \$2.00

**Staples—**

Barbed Blind..... lb. 8¼¢ @ 9¢  
 Electricians', Association list..... 80¢ 10¢  
 Fence Staples, same price as Barbed  
 Wire. See Trade Report.  
 Poultry Netting..... lb. 4¢ @ 4½¢  
 Grand Crossing Tack Co.'s list..... 75¢ 10¢

**Steels, Butchers'—**

Dick's..... 40¢  
 Foster Bros..... 40¢  
 C. & A. Hoffmann's..... 40¢  
 Nichols Bros..... 50¢  
 John Wilson's, list Sept. 1, '94..... 25¢

**Steelyards—**

Blacksmiths'..... 35¢ @ 40¢

Gardner..... 40¢ 10¢

Green River..... 25¢

Lightning Screw Plate..... 25¢

Little Giant..... 25¢

Rece's New Screw Plates..... 25¢ @ 30¢

Reversible Ratchet..... 25¢

**Stone—****Scythe Stones—**

Pike Mfg. Co., list '95-'96..... 33¼¢

Cleveland Stone Co., list Nov., '92..... 33¼¢

**Oil Stones, &c.**

Pike Mfg. Co.:  
 Hindostan No. 1, 7 lb. 8¢

Sand Stone..... 5¢ 33¼¢

Turkey Oil Stone, Extra..... 33¼¢ @ 10¢

Turkey Slips..... 22¢

Lily White Washita..... 60¢

Rosy Red Washita..... 60¢

Washita Stone, Extra..... 60¢

Washita Stone, No. 1..... 40¢

Washita Stone, No. 2..... 30¢

Lily White Slips..... 90¢

Rosy Red Slips..... 90¢

Washita Slips, Extra..... 90¢

Washita Slips, No. 1..... 70¢

Washita Slips, No. 2..... 70¢

Arkansas Stone, No. 1, 3 to 5 lb. \$2.50

Arkansas Stone, No. 1, 5 to 10 lb. \$3.50

Tanite Mills:  
 Emery Oil, 7 doz. \$5.00..... 50¢ @ 60¢

**Stoners—****Cherry—**

Enterprise..... 25¢ @ 30¢

Stops, Bench—

Millers Falls..... 15¢ 10¢

Morrill's... 7 doz. No. 1, \$10.00; No. 2,  
 \$11.00, 40¢ 20¢

Stearns'..... 30¢ 5¢

**Stops, Window—**

Ives' Patent..... 25¢ 5¢

Taplin's..... 45¢

**Stove Boards—**

See Boards, Stove.

**Stove Polish—See Polish, Stove.****Straps, Box—**

Cary's Universal..... 20¢ 10¢ 10¢

**Stretchers, Carpet—**

Cast Iron, Steel Points..... doz. 70¢ 75¢

Cast Steel, Polished..... doz. \$2.25

Socket..... doz. \$1.75

**Stuffers, Sausage—**

Miles' Challenge, 7 doz. \$20..... 50¢ 50¢ 5¢

Enterprise Mfg. Co., list Jan. 17, '93.....  
 25¢ @ 25¢ 7½¢

National Specialty Mfg. Co., list Jan.  
 1, '97..... 25¢

**Tacks, Brads, &c.—**

List Jan. 15, '99.

Carpet Tacks:  
 American Blued..... 30¢ @ 30¢ 25¢

American Tinned..... 30¢ @ 30¢ 25¢

American Cut Tacks..... 30¢ @ 30¢ 10¢ 5¢

Swedes Iron Tacks..... 30¢ @ 30¢ 10¢ 5¢

Upholsterers' Tacks..... 30¢ @ 30¢ 10¢ 5¢

Gimp Tacks..... 30¢ @ 30¢ 10¢ 5¢

Lace Tacks..... 35¢ @ 35¢ 30¢

Trimmers' Tacks..... 30¢ @ 30¢ 20¢

Looking Glass Tacks..... 70¢ @ 70¢ 10¢

Bill Posters' and Railroad Tack.....  
 90¢ @ 25¢ 90¢ 35¢

Hungarian Nails..... 80¢ @ 80¢ 10¢

Common and Patent Brads..... 75¢ @ 75¢ 5¢

Trunk and Clout Nails:  
 Blued..... 80¢ @ 80¢ 10¢

Tinned..... 80¢ @ 80¢ 10¢

**Miscellaneous—**

Double Point Tacks..... 90¢ @ 5¢

Steel Wire Brads, R. & E. Mfg.  
 Co.'s list..... 50¢ @ 10¢ 60¢

See also Nails, Wire.

**Tanks, Oil—**

Emerald, S. S. & Co..... 30-gal. \$3.00

Emerald, S. S. & Co..... 60-gal. \$3.75

Queen City S. S. & Co. 60-gal. each \$4.00;

100-gal. \$6.25; 150-gal. \$8.50; 200-

gal. \$14.00; 250-gal. \$17.75

**Tapes, Measuring—**

American Ases' Skin..... 40¢ @ 10¢ 50¢

Patent Leather..... 25¢ @ 25¢ 10¢

Steel..... 33¼¢ @ 40¢

Chesterman's..... 25¢ @ 25¢ 5¢

Keuffel & Esser Co., Steel and Metallic,  
 new list, 1898..... 35¢

Lufkin's Steel and Metallic..... 33¼¢ @ 33¼¢ 25¢

**Thermometers—**

Tin Case..... 80¢ @ 10¢ 30¢ 10¢ 10¢

**Ties, Bale—Steel.**

Standard Wire..... 50¢ @ 10¢ 5¢

**Ties, Wall—**

Cleveland, Steel..... 7 1000, \$10.00

**Tinners' Shears, &c.—**

See Shears, Tinners', &c.

**Tinware—**

Stamped, Japanned and Piced, sold  
 very generally at net prices.

**Tire Benders, Upsetters,**

&c.—See Benders and Upset-

ters, Tire.

**Tobacco Cutters—**

See Cutters, Tobacco.

**Tools—****Coopers'—**

L. & I. J. White..... 20¢ @ 20¢ 5¢

**Saw—**

Atkins' new list..... 40¢

Simonds'..... 33¼¢

**Transom Lifters—**

See Lifters, Transom.

**Traps—Game—**

Newhouse..... 50¢ @ 50¢ 10¢

Oneida Pattern..... 30¢ @ 30¢ 5¢

**Mouse and Rat—**

Mouse, Wood, Choker, doz. holes 3 @ 9¢

Mouse, Round or Square Wire.....  
 doz. \$0.35 @ 1.00

Dandy..... 7 doz. \$1.75

Marty French Rat and Mouse Traps  
 (Genuine):  
 No. 1, Rat..... 7 doz. \$15.00

No. 3, Rat..... 7 doz. \$5.85

No. 3½, Rat..... 7 doz. \$4.50

No. 4, Mouse..... 7 doz. \$4.50

No. 5, Mouse..... 7 doz. \$3.00

Schuyler's Rat Killer, No. 1, 7 gr. \$13.50;

No. 2, 7 gr. \$15.00

Out o' Sight, Mouse, No. 1, 7 doz. 60¢;

Rat, No. 2, \$1.25; Mice, \$2.00;

Gopher, \$1.50; Stop Thief, No. 1,  
 \$1.25; No. 2, \$1.50.

**Fly—**

Balloon, Globe or Acme.....

doz. \$1.25; gro. \$14.50 @ 15.00

Harper, Champion or Paragon  
 doz. \$1.50; gro. \$17.00

**Trimmers, Spoke—**

Bonney's No. 1, 7 doz. \$2.75; No. 2,  
 \$3.75

Douglas', 7 doz. \$9.00..... 30¢

Stearns'..... 20¢ 10¢

**Trowels—**

Diaton Brick and Pointing..... 30¢

Diaton Plastering..... 25¢

Diaton Standard brand..... 40¢

Pease's Plastering..... 25¢ @ 25¢ 5¢

Rose Brick and Plastering..... 30¢ @ 30¢ 10¢

Woodrough & McParlin, Plastering 25¢ 10¢

**Trucks, Warehouse, &c.—**

B. & L. Block Co.'s list..... 40¢

Daisy Stove Trucks, Improved pattern  
 7 doz. \$18.00

**Tubs, Wash—**

No. 1 2 3

Galvanized, 7 doz. \$5.25 6 0 6.75

Galvanized S. S. & Co., with Winger  
 Attachment, 7 doz. No. 10, \$6.35;

No. 20, \$6.75; No. 30..... \$7.50

**Twine—****Binder—**

White Sisal, 500 feet to lb..... 9½¢

Standard, 500 feet to lb..... 9½¢

Manila, 600 feet to lb..... 10½¢

Pure Manila, 650 feet to lb..... 10½¢

**Miscellaneous—**

Flax Twine— BC B.

No. 9, ¼ and ½-lb. Balls..... 20¢ 24¢

No. 12, ¼ and ½-lb. Balls..... 17¢ 20¢

No. 18, ¼ and ½-lb. Balls..... 14¢ 17¢

No. 24, ¼ and ½-lb. Balls..... 14¢ 17¢

No. 36, ¼ and ½-lb. Balls..... 13¢ 16¢

Chalk Line, Cotton, ½-lb. Balls.....  
 18¢ @ 20¢

Cotton Mops, 6, 9, 12 and 15 lb. to  
 doz..... 8¢ @ 9¢

Cotton Wrapping, 5 Balls to lb.....  
 9¢ @ 16¢

American 2-Ply Hemp, ¼ and ½-lb.  
 Balls..... 9¢ @ 10¢

American 3-Ply Hemp, 1-lb. Balls.....



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